MEANING AND STRUCTURE IN THE VISUAL ARTS AND MUSIC

A Dissertation

Presented to
The Faculty of the Graduate School of Arts and Sciences
Brandeis University
Department of Philosophy

In Partial Fulfillment
of the Requirements of the Degree
Doctor of Philosophy

by
Rea E. Rabinowitz
April, 1974

XUM

This dissertation, directed and approved by the candidate's Committee, has been accepted and approved by the Graduate Faculty of Brandeis University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Jack S. Goldstein

Dean, Graduate School of Arts
and Sciences

MAY 19 1974

Dissertation Committee

H. D. Aiken

Chairman

Paul Brainard

XUM

TABLE OF CONTENTS

INTRODUCTION 1

CHAPTER I. ART AS SIGNIFICANT FORM. 10

Presentational Versus Discursive Symbolisms
The Perceptual Character of Form
The import of Aesthetic Symbolism: A Critical Evaluation
Dualism in Langer's Theory
Suggestions for a New Look at "Significant Form"

CHAPTER II. REPRESENTATION, EXPRESSION, AND EXEMPLIFICATION AS SYMBOLIC MODES . . . 63

Labeling: An Important Symbolic Function
Hearing Structural Features Versus Hearing Expressiveness
Limitations of a Denotative Model of Aesthetic Significance

CHAPTER III. MEANING AS INFORMATION 107

Information and Embodied Meaning
Redundancy and Embodied Meaning
Semantic Information and Syntactic Information
Evaluation of the Information-Theoretic Approach
Concluding Remarks

CHAPTER IV. COGNITION AND THE PERCEPTION OF STRUCTURE IN ART. 183

Summary
Various Senses of "Cognitive"
Further Approaches to the Cognitive Significance of Structure

BIBLIOGRAPHY 205

XUM

INTRODUCTION

To say that art has significance is perhaps to utter a truism about human culture. Nevertheless, philosophers of art have been particularly concerned with that assertion, for the notion that art has significance immediately allows one to wonder why it is that certain human artifacts have been singled out as "works of art," and that in turn suggests the question of what sort of significance a work of art can have.

People who talk about significance in art often talk about it in terms of the meanings or the messages in works of art. In so talking they are assuming that works of art communicate something to their viewers, or listeners, or readers. It is, therefore, not at all surprising that philosophers should consider the notion of art as a language or a symbolic system. Of course, this notion is suggestive only in the light of our understanding of language or symbol systems in general.

If art is a language, it is relevant to ask what kind of language it is. There may be a definite relation between the structure of a language and what is being incoded, and it seems that certain structures only permit certain kinds of information to be conveyed. Consequently, it is very likely that if the different arts are each capable of conveying some kind of information, the kind of information may vary with the kind of art. Also, it may be the case that some art forms will be capable of conveying more than one kind of information, or that there are levels of information in some works of art.

For some philosophers who consider art as a language, the aspect of language which interests them is the ability of ordinary language to have a cognitive import. If art is language-like, then perhaps art has a cognitive import also. Furthermore, perhaps art is significant precisely because of its cognitive import. Any attempt to show that works of art have an important cognitive function must deal with the fundamental issue of what is meant by "cognitive." Monroe Beardsley makes the following statement in respect to a declarative sentence:

> The sentence has not merely a meaning; it also has the characteristic of being true or false, and consequently believable or disbelievable. In virtue of having this characteristic, it can record and communicate knowledge. In other words, it has a cognitive function.[1]

Apparently he takes "cognitive function" to be tied up with the ability to record and communicate knowledge, and he assumes that to do this the vehicle must have the characteristic of being true or false. One way of construing the notion of art having a cognitive function is to say that works of art somehow contain statements about reality which are true or false. This view is immediately problematic for painting and music since these arts do not appear to contain any statements at all. Perhaps if one cannot demonstrate that works of art contain such statements, one might be able to demonstrate that they sometimes imply statements.[2] There is, of course, a separate question whether or not the presence of truth claims actually accounts for the significance of art as art.

---

[1] Monroe C. Beardsley, Aesthetics: Problems in the Philosophy of Criticism (New York: Harcourt, Brace and Company, 1958), p. 367.

But not all advocates of the cognitive function of art are actually concerned with truth claims. Some writers suggest that art has something to do with knowledge even if works of art are not bearers of knowledge in the way that statements can be said to be bearers of knowledge. This latter view carries with it the assumption that the relationship between works of art and knowledge is not that of the relationship between raw material and inferences from it. One might claim, for example, that works of art communicate knowledge of the kind gained by "living through" certain experiences. Or perhaps one might argue that works of art have a cognitive function in virtue of certain symbolic properties which are unique to them.

---

[2] For a discussion of this question see Morris Weitz, Philosophy of the Arts (New York: Russell and Russell, 1964), pp. 136-152.

One should note that both of these generally stated views about the cognitive function of art seem to require the abandonment or alteration of certain distinctions which are often taken for granted in discussions of ordinary language as a bearer of knowledge. The first position, that works of art imply statements, raises questions about the distinction between emotive and referential language. And the second view raises questions about the distinction between knowledge and experience. (It seems to me that there is a central confusion to be dealt with centering around an assumption that the cognitive is essentially linguistic while experience is pre-linguistic.) Opposed to the advocates of the view that art has a cognitive function are those who argue that, for example, painting is not to be considered as a vehicle of thought at all, but rather the concern of painting is the expression of something purely pictorial. But one could still question whether we would want to say that "the expression of something purely pictorial" is not itself cognitive.

The view that works of art are cognitive in some other way than as a bearer of knowledge in the form of statements (either by containing statements or implying them) is not at all new to the field of aesthetics. Croce argued for the mutual exclusiveness of two forms of thinking, thinking scientifically and thinking aesthetically. The former was to be considered under the realm of logical knowledge and the latter under the realm of intuitive knowledge. Each form of knowledge was also to have a corresponding form of truth. More recently, Susanne Langer argued that the various arts were non-discursive but, nevertheless, articulate symbolisms carrying their own particular kind of import. Since Langer first presented her theory of art a rather large number of theories have been put forward as proposed explanations of the cognitive function of art in this latter sense.

In this paper I shall be concerned with three different attempts to explain the cognitive function of art through an exploration of its symbolic properties. Certain aspects of the aesthetic theories of Susanne Langer, Nelson Goodman, and Leonard Meyer will be discussed, in that order, in an attempt to arrive at a broad understanding of some of the ways in which the visual arts and music function symbolically, with particular emphasis on the fact that the visual arts and music differ from nat-

XUM

ural language in that they seem to be primarily directed towards our perception.[3] (Of course, it is to be understood that Langer's and Goodman's theories are intended to apply to all of the arts at least in certain aspects. However, here the concern will only be with the theories insofar as they apply to those arts which are essentially non-linguistic.) Consequently, I shall be considering whether or not there is a mode of symbolization through which we can explain the significance of the perceptual nature of these arts.

I have chosen to deal with the theories of Langer, Goodman, and Meyer because they offer three very diversified approaches to the problem of accounting for the symbolic nature of the arts. Furthermore, each of the theories involves the view, whether more or less explicitly, that aesthetic significance is essentially bound up with the sumbolic nature of the arts. A consideration of these three theories, therefore, seemed to me to be one way of exploring the question of whether one can explain the aesthetic significance of the perceptual nature of visual and musical works through an account of the symbolic properties in those works. I intend to argue, in respect to the three theories considered, that they cannot provide such an account; and the suggestion will be made that a thoroughgoing account of the significance of perceptual features in works of art as symbolic is not possible unless one alters what one will allow to count as a symbolism to include features in a work which may be said to have something corresponding to syntactic properties but which apparently lack a semantic component.

---

[3] By "visual arts," I am referring to painting, sculpture, and dance insofar as they do not employ ordinary language. (I suspect that architecture may present some different kinds of problems.) Most of my specific references will be to painting only because that enables me to avoid unnecessary complications in the discussion. By "music," I am referring to all instrumental compositions, and all instrumental parts of compositions for voice and instrument, and, perhaps, I would include vocal compositions which do not employ ordinary language.

Throughout the discussion that follows the terms "form" and "structure" will be used in respect to perceptual works of art. It is important to get clear at this point what is and what is not intended by such terms. I rather dislike talking about the "form" of a work since that calls up the form-content distinction. Also "form" has a special use in respect to sculpture. However, Langer states that she is concerned with the "significance of form" in art, so the term "form" is necessarily introduced into the discussion. Nevertheless, I suspect that Langer's use of the term "form" overlaps to a considerable extent Meyer's and Goodman's use of the term "structure." In all three cases, the concern is with the complex interrelations of all the perceptual elements making up the work. And unlike the syntax of language, the significant interrelations of elements constituting the "structures" which figure in the perception of a work of art cannot be separated from the elements which are interrelated. Notice that structure here does not refer to the fact that a musical work might, for example, take the form of a fugue. Rather, it refers to how the perceptual elements in that particular fugue are perceived as entering into relationships with one-another. In terms of the interrelations that elements enter into, the elements can be said to be heard or seen as "organized" in a particular way.

I shall not argue that works of art can be said to have structures in the above sense or that "understanding" a work can be said to involve an awareness of properties which arise out of hearing or seeing elements as organized in a certain way. The question of the significance of structure in art has figured long enough in the history of aesthetics. Rather, I shall assume that viewers and listeners often attend to structural features in their perception of works, and that consequently the questions of the symbolic and cognitive significance of the perceptual nature of visual and musical works are to a large extent questions of the symbolic and cognitive significance of those structural features which engage the interest of the perceiver.

CHAPTER I

ART AS SIGNIFICANT FORM

Presentational Versus Discursive Symbolisms

Susanne Langer was one of the first writers on aesthetics to attempt an extensive exploration of the cognitive nature of the arts from the point of view of a general study of symbolism. The rather common assumption that works of art are meaningful, or that they communicate, leads one to question how art compares with ordinary language, since we normally take ordinary language to be the paradigm as a carrier of meaning or vehicle of communication. Langer assumes that discursive language can perform certain functions--such as being a vehicle for the formation of statements which are true or false--because it is a certain kind of symbol system. The arts, according to Langer, must also be symbol systems which perform a function unique to them as a result of their particular symbolic properties. Langer, therefore, tries to understand the arts and determine their significant function by examining their symbolic properties on the basis of similarities to and differences from discursive language.

A review and critical study of Langer's contribution to aesthetics is the appropriate starting point for my own discussion of the significance of structure in the perceptual arts for a number of reasons--aside from the fact that Langer carried out the first comprehensive study of the symbolic function of form in art. First of all, such a review will present the background out of which my own questions arise. In this regard, Langer's work is particularly important because of the emphasis which she places upon the perceptual character of the artistic symbol in the visual arts and music as differentiated from the linguistic symbol. Her reasons for this emphasis, and for the further distinctions which she makes between the symbolic properties of art works and those of linguistic systems, are insightful, and they are especially worthy of discussion because they tend to be overlooked in more contemporary discussions of the perceptual arts. Secondly, in criticizing Langer I hope to bring to light some of the pitfalls to be avoided in an exploration of the cognitive and symbolic nature of the arts. Langer continually points out the dangers of placing too much emphasis on discursive language as the model for significance in the arts. Nevertheless, I shall argue that she tends to be too easily swayed by that model as are Goodman and, to a lesser extent, Meyer. Finally,,

XUM

I think that a study of Langer's work will help to establish a point of comparison for the subsequent evaluation of the work of Goodman and Meyer in Chapters II and III. Langer's Goodman's, and Meyer's work can be seen as three diverse attempts to make sense of the problem of significance in works of art on the basis of a study of symbolism in art. Where they are correct, each offers something to the solution which the other two have overlooked. Where they are wrong, I shall argue that their error stems in part from a failure to deal with the perceptual character of the visual and auditory arts and a failure to extract themselves from certain features of the model of significance in linguistic systems, while they overlook other features of linguistic systems that may be suggestive.

Langer begins the development of her philosophy of art in Philosophy in a New Key in which she attempts to put forth a general theory of symbolism.[1] The view of art as symbolic but distinct from discursive language emerges from her general theory. Symbolism is more than a human artifact for Langer. She writes, "symbolism is the recognized key to that mental life which is charac-

---

[1] Susanne K. Langer, Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art (New York: The New American Library, 1951). (Hereafter referred to as New Key.)

XUM

teristically human."[2] Furthermore, Langer states that man does not make symbols simply in the interest of those biological needs which are recognized by genetic psychology. If this were the case there would be no art, no ritual, and no interest in magic.[3] Rather, man seems to have a basic need of symbolization in itself. "The symbol-making function is one of man's primary activities, like eating, looking, or moving about. It is the fundamental process of mind, and it goes on all the time."[4] Clearly, Langer's view of symbolization is from the start much broader than that which falls under the realm of discursive reasoning. And her notion of the "cognitive" does not just pertain to information of the kind carried in statements. If art is shown to be a form of symbolism, then art is cognitive, and its particular cognitive import will depend upon the kind of symbolism it is.

It should be noted that Langer never considers the possibility of the realm of the cognitive extending beyond the symbolic. It would seem that any activity which can be shown to be part of man's mental life is, for Langer, symbolic. At the same time, Langer recognizes

---

[2] Ibid., p. 34.

[3] Ibid., p. 43.

[4] Ibid., p. 45.

XUM

that man's mental life includes certain activities that have often been designated as pre-mental or experiential by certain philosophers. "Symbolization is the essential act of mind; and mind takes in more than what is commonly called thought."[5] Perception, whether by sight, hearing, or touch falls into this category of symbolization which is not thought in the sense of discursive reasoning. She writes:

> All sensitivity bears the stamp of mentality. 'Seeing', for instance, is not a passive process,by which meaningless impressions are stored up for the use of an organizing mind, which construes forms out of these amorphous data to suit its own purpose. 'Seeing' is itself a process of formulation; our understanding of the visible world begins in the eye.[6]

Any attempt at understanding art with the intent of formulating a comprehensive aesthetic theory must, according to Langer, deal with the notion of significant form.

> The many leading ideas in aesthetic theory that are current today, each seeking to thread a different path through the mysteries of artistic experience, and each constantly evading or perforce accepting some paradoxical post, really all converge on the same problem: What is 'significance' in art?[7]

---

[5] Ibid.

[6] Ibid., p. 84

[7] Susanne K. Langer, Feeling and Form (New York: Charles Scribner's Sons, 1953), pp. 22-23.

When Langer considers a number of leading aesthetic theories, she realizes that they all fail to account for the particular articulate quality of the various arts. Arguing against the view that works of art are only expressive in a symptomatic way, she asks in respect to poetry:

> Why should we cry our feelings at such high levels that anyone would think we are talking? Clearly, poetry means more than a cry; it has reason for being articulate;...We are dealing with symbolisms here, and what they express is often highly intellectual. Only, the form and function of such symbolisms are not those investigated by logicians, under the heading of 'language."[8]

Consequently, we must give our attention to "what every artist knows as the real problem--the perfection of form, which makes this form 'significant' in the artistic sense."[9]

Poetry and literature are not the only arts which are articulate. If one considers the history of music, one is again led to see that there are similar features in need of explanation.

> For the history of music has been a history of more and more integrated, disciplined, and articulate forms, much like the history of language, which waxes important only as it is weaned from its ancient source in expressive cries,

---

[8] Langer, New Key, p. 81.

[9] Ibid., p. 178.

XUM

> and becomes denotative and connotative rather than emotional.[10]

Consequently, there is something about the arts themselves, which Langer refers to as their articulateness of form, which seems to be directly relevant to the kind of significance that we might attribute to the arts. Of course, one must realize that to say that form is of central significance in the arts is not in itself to provide an answer to questions in aesthetics, but rather it is a way of redirecting or reformulating questions.

The statement that form is significant in the arts leads one to ask, "What kind of significance does form have?" For Langer, only if we allow that form is significant as symbolism can we explain the particular "articulate" nature of the arts. She writes:

> If music has any significance, it is semantic, not symptomatic. Its 'meaning' is evidently not that of a stimulus to evoke emotions, nor that of a signal to announce them; if it has an emotional content, it 'has' it in the same sense that language 'has' its conceptual content--symbolically.[11]

The problem facing Langer is to explain the kind of symbolism involved in music and the other arts in the light of similarities and differences between the arts and discursive language.

---

[10] *Ibid.*, p. 184. It is not clear how much of contemporary music fits this pattern. Certainly, if "random" music is articulate, it is not articulate in the way that Beethoven's music is articulate.

[11] *Ibid.*, p. 185.

The problem of understanding the symbolic nature of the arts is part of a larger problem of understanding "the ways in which logical structures may enter into various types of 'significance'."[12] There are two related areas of consideration in Langer's discussion of this problem in respect to the arts, although Langer does not necessarily treat them separately. These are, first, a determination of the properties of the symbol itself, whether it be a musical composition, or a painting, or a work of another kind; and second, a determination of the kind of meaning or import which the artistic symbol is capable of carrying. Since the import attributable to works of art depends on the kinds of symbols they are or contain, if they are indeed symbolic, it is appropriate first to present Langer's views on the properties of the artistic symbol even though some overlap with her views on meaning must necessarily occur.

Langer's account of artistic symbolisms begins with the establishment of the fact that the various arts are not languages. A musical work, like a sentence or a map, is a complex symbol referred to by Langer as an articu-

---

[12] Ibid.

XUM

late form.[13] However, a sentence in a language is made up of words which have their reference fixed by convention. Language, therefore, has a vocabulary which music and painting both lack. And while part of the meaning of a sentence depends on the particular arrangement of words, part of the meaning also depends on the prior assigned reference to the various words involved.

> Logically, music has not the characteristic properties of language--separable terms with fixed connotations, and syntactical rules for deriving complex connotations without any loss to the constituent elements.[14]

One might want to suggest that tones correspond to words and make up the vocabulary of music. However, Langer would argue, I think correctly, that a musical composition is not made up of tones in the way that a sentence is made up of words. Tones in themselves have no particular import. Comparing art with artifact, Langer writes:

> A work of art, on the other hand, is more than an 'arrangement' of given things--even qualitative things. Something emerges from the arrangement of tones or colors, which was not there before,...[15]

At another point she states:

> The symbol is, from first to last, something created. The illusion, which constitutes the

---

[13] Langer, Feeling and Form, p. 31.

[14] Langer, New Key, p. 197.

[15] Langer, Feeling and Form, p. 40.

> work of art, is not a mere arrangement of given materials in an aesthetically pleasing pattern; it is what results from the arrangement, and is literally something the artist makes, not something he finds.[16]

The Perceptual Character of Form

Langer's point pertains to the fact that the musical symbol is a perceived symbol, and our perception of any particular tone within a composition depends upon its perceived relationship to the other tones around it. Consequently, the tones of a composition can only be said to have an aesthetic import or meaning when they are perceived in their respective relationships within the total composition. A composition is not a mere arrangement of tones since the elements of an arrangement have a character of their own irrespective of their position in the arrangement; whereas the position of a tone in a composition is precisely what gives that tone its particular perceptual quality. A consideration of the meaning of individual words in a sentence is certainly relevant to understanding that sentence, but a consideration of the tones in a musical composition would never give us a clue to what is heard in hearing the composition.

While there is nothing in painting analogous to the tones of a composition which might be taken for the "vocabulary" of the art, still it is important to stress the similar perceptual character of the painted work. Langer notes that some painters and critics speak of "arranging" forms and colors on the canvas. Nevertheless, she would insist that one is mistaken to regard the resultant work as an "arrangement."

---

[16] *Ibid.*, p. 67.

> Even the forms are not phenomena in the order of actual things, as spots on a tablecloth are; the forms in a design--no matter how abstract--have a life that does not belong to mere spots. Something arises from the process of arranging colors on a surface, something that is created, not just gathered and set in a new order: that is the image. It emerges suddenly...and with its advent the very existence of the canvas and of the paint 'arranged' on it seem to be abrogated; those actual objects become difficult to perceive in their own right. A new appearance has superseded their natural aspect.[17]

Just as in music, one cannot, therefore, talk about the import of a splash of color or a form outside of the context of the complete work.

In this part of her discussion of the perceptual nature of works of art, Langer is actually making two different points which should be distinguished. The first point is that languages are constructed out of vocabularies so that it makes sense to talk about the meanings of the individual symbols comprising the vocabularies as well as the meanings of the complex units formed out of the vocabularies; whereas there are no corresponding vocabularies in the perceptual arts. Even if one can talk about musical compositions as containing smaller perceptual units such as phrases or visual works as containing forms of certain sorts, these units do not correspond to words. (This is not necessarily to deny that the representational units in a painting might have definite references. Since such units are not considered by Langer to be aesthetically significant, they do not constitute anything like a vocabulary for the painting insofar as it is a work of art.)

---

[17] Ibid., p-. 47-48.

The second point is actually twofold. Langer wants to call attention to the fact that the aesthetically relevant perceptual character of any element in a work of art is dependent upon that element's relationships to the other elements in the work. And she wants to claim that the reason for this mutual interdependence of the elements in a work is because the aesthetically relevant perceptual characters of all the elements in a work are emergent properties of those elements in relationship to one-another.

I think that it is with regard to this last mentioned feature of works of art that Langer contrasts the forms of a work with the spots on a tablecloth.[18] And just

---

[18] When Langer speaks of "spots on a tablecloth" (see

XUM

what Langer has in mind by this contrast is in need of clarification. One might want to claim that the spots on a tablecloth are as mutually interdependent in their perceptual characteristics as are the elements of a painting. We know, for example, that the background color may affect the perceived color of the spots and vice versa. And we also know that certain color spots in relation to certain color backgrounds may appear to be larger than other color spots on the same or a different background. Indeed, there is evidence that the colors we see in our daily environments depend not only on the quality of light and the conditions of our sensory organs but also on our beliefs about what we are seeing and about what colors those things we are seeing would normally be.[19]

When Langer discusses the interdependence of elements in a work of art, I do not think that she is referring simply to the way in which a color is affected by its surrounding colors. What emerges, I think she is saying,

---

above, p. 20) it is unclear whether she is talking about actual elements in the design of the tablecloth or stains which the cloth has acquired through use. I assume throughout my discussion that she is talking about elements in the design of the tablecloth, but the issue is not crucial to my discussion.

[19] R. L. Gregory, Eye and Brain: The Psychology of Seeing (New York: McGraw-Hill Book Co., 1966), p. 125.

XUM

is very different from colors or tones even though it may be said to be comprised out of colors or tones. In the case of a painting, what emerges is a multi-dimensional spatial world regardless of the fact that space is not normally taken to be a property of color. The distinction which I think Langer would want to draw is between perceptual features which seem to be given even if they are perceptually alterable and features which seem to emerge from certain arrangements of color and line but which are not themselves properties of color and line. I believe that Langer's insistence that the painter is creating a virtual image of space depends upon this distinction.

Just what is a property of color may be in question here. Can one talk about coldness or warmth in the same way that one talks about hues or shades? Leaving this difficult question aside, it seems that the features of a work to which Langer is referring may be emergent in the sense that they are relational properties of colors and lines. I suspect that Langer is mistaken in thinking that all such features in visual works are in some sense spatial. Tension in a work can be purely an effect of color juxtaposition without the artist creating any spatial dimensions by that juxtaposition, or it can be an effect of opposing spatial cues, or both. Also, I think that Langer is mistaken insofar as she seems to suggest that such emergent features are unique to works of art. A designer may weave a fabric out of two colors which are known to "vibrate" when placed next to each other. The resulting fabric may be a color which looks like neither of the colors out of which it was woven and yet have a particular quality of vibrancy which could only have resulted from the two colors being placed in relation to one-another.

Apparently, the musical or visual symbol, as Langer conceives of it, is perceptual through and through. And on the basis of her understanding of the aesthetically relevant features of a work as dependent upon the entire web of relationships of colors and forms, Langer concludes that the work of art as a symbol functions as an organic unit. Consequently, if works of art are symbolic, the entire work must be taken to be the symbol.

Langer does not concern herself with the way in which forms within a painting may be symbolic in that they represent objects. In noticing how colors and forms are totally interdependent in the articulation of the work, she tends to overlook the fact that certain combinations of forms comprise representational figures which may be said to function symbolically insofar as they are representational. At any rate, those symbolic properties are

XUM

not considered to be aesthetically relevant no matter how interesting the forms are as representations. They are considered to be meaningful in an aesthetic sense only insofar as they serve to articulate the space of the work. Langer states, "If, therefore, the artist presents semblances of objects, people, landscapes, etc., it is for their visual value as portions of perceptual space."[20]

> Representation, in other words, is for the sake of creating individual forms in visible relation to one another. It makes the imagination help the eye to establish virtual proportions, connections, and focal points. The suggestion of familiar objects, used in this way, is essentially a device for constructing volume, distances, planes of vision and the space between them; and as such it is a genuinely artistic factor.[21]

One must apparently conclude that the visual work or musical work when conceived of as a work of art does not contain symbols but rather is in its entirety a symbol.

Langer summarizes this distinction between a work of art and discourse in the following statement:

> It [a work of art] is not, like a discourse (which may also be regarded as a single symbolic form), composite, analysable into more elementary symbols--sentences, clauses, phrases, words, or even separately meaningful parts of words: roots, prefixes, suffixes, etc.; selec-

---

[20] Langer, Feeling and Form, p. 75.

[21] *Ibid.*, p. 76.

> ted, arranged and permutable according to publicly known 'laws of language.' For language, spoken or written, is a symbolism, a system of symbols; a work of art is always a prime symbol. It may indeed, be analyzed, in that its articulation may be traced and various elements in it distinguished; but it can never be constructed by a process of synthesis of elements, because no such elements exist outside of it.[22]

In evaluating Langer's discussion of the aesthetic symbol as compared with the linguistic symbol, one must be careful to distinguish the many different claims that are being made as well as to distinguish those claims which contain the substance of her position from those of lesser weight. And it is most important not to lose sight of the suggestiveness of her analysis even where one may feel that Langer is wrong on so many issues.

Langer's easy dismissal of the aesthetic significance of representation certainly must provoke questioning. A figure which represents is clearly functioning as a symbol even if the analysis of the manner in which it refers is still open to dispute.[23] But, of course, Langer could acknowledge this point and still deny the aesthetic import of that form of symbolism in the arts. (Although she may have to acknowledge that seeing a form as representing an X may be important for that form to delineate the space of the work in an aesthetically interesting way.) Unfortunately, if this is her view, her only argument in support of it is her contention that the work must be a prime symbol because the parts are perceptually interdependent.

---

[22] *Ibid.*, p. 369.

[23] This problem will be further discussed in Chapter II in considering Goodman's proposed analysis of reference in representation.

One could counter Langer's position by pointing out the fact that a sentence is not all that different from a representational painting. For example, we know that the syntax of a sentence contributes to its meaning as well as the words comprising the sentence, so that a sentence may not be properly called an "arrangement" of parts any more than a painting. Furthermore, in representational painting we can sensibly talk about the painting as being comprised out of forms each having an assigned meaning--without raising the question of whether resemblance is either a sufficient or necessary condition for representation--even though the semantic and syntactic properties of a painting may be very different from those of a sentence. Langer does not consider the possibility that a work of art can have more than one kind of aesthetic significance by functioning in more than one symbol system. By concentrating her attention on a source for a unique aesthetic import, she overlooks a possible explanation for the richness of meaning which is often attrib-

XUM

uted to works of art as well as an explanation for how works as different in created space as a Rembrandt portrait and a Mondrian may be seen to be aesthetically significant.

While Langer's discussion is in many respects inadequate, there is also a great deal of content which requires serious consideration. Many people would tend to balk at the suggestion, implicit in the comparison of representational paintings with descriptive sentences, that a painting is really similar to a unit of discourse. There is a difficulty in acknowledging the significance of representation in art and yet avoiding having to describe a Cezanne still life as "apples, a bottle, and a table placed at an unusual angle." One wants at least to say that one difference between discourse and representational art is in the emphasis placed upon the referring symbol in art as opposed to the referent. And, in the case of the Cezanne still life, one might even want to say that its significance could be quite unrelated to its representational content; whereas one rarely wants to say of a descriptive sentence in ordinary discourse that its meaning is unrelated to the words comprising that sentence.

The distinction which for Langer is central to understanding the artistic symbol as compared with the discursive symbol is directly related to the perceptual nature of the arts being considered. In discursive language, the same content can take both a written and a spoken symbolic form supposedly without significant alteration of meaning. (This is not to deny that one can utter the same words in different voice tones and change the meaning of the utterance for a listener.) Also, the same content can be conveyed in any number of variations of handwriting or type face. The focus is on what the words mean. In painting, what is represented is often of incidental interest compared to how it is represented. The focus is on the perceptual features of the symbol itself. I think that Langer was essentially correct in her belief that one must constantly keep in mind the fact that artists in the visual arts and music are concerned with the creation of works which are perceptually interesting in themselves.

Attempts to explain significance in works of art must come to terms with the features of a work which are purely perceptual in that they do not depend upon external sources of meaning. However, perceptual features present serious problems for an account of significance in terms of symbolism. If a symbol refers to something outside of itself which is its meaning, then it is a vehicle similar to the elements of discursive language.

As a vehicle, its meaning is of primary interest, and any interest that the symbol has for us as a perceptual object in itself is incidental to the meaning which the symbol has.

Langer is faced, therefore, with the choice of concluding either that the perceptual significance of works of art is not symbolic significance or else that works of art as symbols function in a manner distinct from the symbols of discursive language or from any other kinds of symbols which direct one's attention away from the symbol to the referent. Langer argues that one can only account for the complexity and articulateness in perceptual art works if one assumes that such works are in fact symbolic. Therefore, she must explain the particular nature of a symbol which has an import that is tied to the perceptual object so that the import does not preempt the interest which the perceptual object affords us in itself.[24]

Langer is certainly aware of the need to develop a unique conception of the symbolic relationship to account for significance in art works. And she is particularly concerned that we do not require the arts to fit the model of ordinary language. She states:

---

[24] Richard Rudner argues that all semiotic theories of significance in art suffer from the difficulty that they cannot explain why we are interested in the art object itself and at the same time explain how the object is meaningful in the sense of referring to something other than itself. See "On Semiotic Aesthetics," *Journal of Aesthetics and Art Criticism*, X (September, 1951), pp. 67-77.

> There are many difficulties involved in the assumption that music is a symbol, because we are so deeply impressed with the paragon of symbolic form, namely language, that we naturally carry its characteristics over into our conceptions and expectations of any other mode.[25]

This statement is meant to apply equally to the other arts as well. In developing her own conception of the artistic symbol, Langer also insists on the inapplicability of the notion that art is another form of comment. She writes:

> The study of non-discursive expression has been hampered and somewhat snarled by an unfortunate 'working model,' which is comment. The use of that model has obscured the most distinctive characteristic of art--that its import is not separable from the form (the picture, poem, dance, etc.) that expresses it. It has been generally assumed that if a work of art expresses anything, in a symbolic and not a symptomatic way, then it must be the author's comment on something. But a comment always does direct one's interest to something distinct from the words, gestures, or other signs conveying it; these are mere signs, they point to an object considered, and convey some question about it.[26]

Langer must conclude that in all the arts, both those which are primarily perceptual and those which depend upon a knowledge of the sense and use of language, the

---

[25] Langer, Feeling and Form, pp. 28-29.

[26] Ibid., p. 394.

XUM

sense of the artistic symbol is "bound to the particular form which it [the artistic symbol] has taken."[27]

Because the sense of the symbol is bound to the "form" of the particular work, the import of a work is unique to that work, and there is no way of adequately restating the import. That is to say, all works of art are untranslatable.[28] This fact would account for the rather pervasive feeling that one need not have to be able to verbalize the import of a work in order to have been aware of that import. Langer states that the sense or import "is always implicit, and cannot be explicated by any interpretation."[29] The sense is implicit in the visual arts and music in that it is not given directly to the perceiver in the way that tones or colors are given to his perception or in the way that most representational features are given. (Once we learn whatever needs to be learned in order to "read" representation, we generally have no problem reading new examples.) But, as we have seen, the aesthetically relevant perceptual features of a work are emergent in that they require for their perception more than just an ability to notice colors or to hear tones. In painting, they are features which apparently arise out of seeing how the colors, forms, and lines are interrelated in the work. Langer would insist that these emergent features are dependent upon what is given in the work. Consequently, the sense or import of a work is not arbitrarily attached to the particular tones or colors that are given, but it is itself dependent upon those properties of a work.

---

[27] Langer, New Key, p. 220.

[28] It should be noted that Langer extends her analysis of the nature of the artistic symbol to all works of art including literary works.

[29] Langer, New Key, p. 220.

The Import of Aesthetic Symbolism: A Critical Evaluation

If one cannot ask what an artist is commenting on in his work, one might still inquire as to the kind of import that a work of art has. To say that a work of art is a symbol seems to require an answer to the question: what does it symbolize? While Langer insists that an artist is not saying anything, she would equally insist that the symbol has a content. And while the specific content of a work can only be expressed by the work itself, Langer thinks that it is possible to give a general account of the kind of thing expressed by the artistic symbol. In brief, her view is that works of art are symbolically concerned with the life of feeling, not as a stimulus to evoke emotions in the perceiver, nor as a symptom of the feelings or emotions of the artist, but,

XUM

rather, works of art are _about_ feelings. "Music is not the cause or the cure of feelings, but their _logical expression_;..."[30] One might ask how the artistic symbol can be about feeling if it is not a vehicle for comment. Langer's answer is that while the artist is not saying anything, not even about the nature of feeling, he is _showing_.

> He is showing us the appearance of feeling, in a perceptible symbolic projection; but he does not refer to a public object, such as a generally known 'sort' of feeling, outside his work. Only insofar as the work is objective, the feeling it exhibits becomes public; it is always bound to the symbol. The effect of this symbolization is to offer the beholder a way of conceiving emotion; and that is something more elementary than making judgments about it.[31]

We must still consider how it is that a work of art is capable of exhibiting the appearance of feeling. Colors do not in themselves seem to exhibit anything. However, we have seen that certain arrangements of colors on a canvas apparently acquire additional dimensions so that they are not seen as a mere arrangements of colors at all. Langer must still explain how paintings, for example, are capable of exhibiting the appearance of feeling through those additional visual dimensions that are

---

[30] _Ibid_., p. 185.

[31] Langer, _Feeling and Form_, p. 394.

XUM

created out of the arrangement of colors and forms.

In order to understand Langer's answer we must look at her general theory of the relation between symbolism and meaning which she states primarily in Philosophy in a New Key. She writes:

> Meaning has both a logical and a psychological aspect. Psychologically, any item that is to have meaning must be employed as a sign or symbol; that is to say, it must be a sign or symbol to someone. Logically, it must be capable of conveying a meaning, it must be the sort of item that can be thus employed.[32]

What must be true of a work of art in order for it to be capable of conveying meaning or having an import? Langer stresses that one is making a mistake if one looks for a quality of meaning. The essence of meaning, writes Langer, "lies in the realm of logic, where one does not deal with qualities, but only with relations."[33] Therefore, Langer thinks that one should think of meaning as "a function of a term." A function is a pattern viewed with reference to one special term around which it centers; this pattern emerges when we look at the given term in its total relation to the other terms around it."[34]

---

[32] Langer, New Key, p. 55.

[33] Ibid., p. 56.

[34] Ibid.

Terms such as words have their meanings fixed by convention. In themselves, such terms are barren, and there is nothing about a term itself that would suggest the meaning assigned to it. However, according to Langer, symbols such as terms, when viewed separately, are the least interesting kinds of symbols from the point of view of semantics. "Before terms are built into propositions, they assert nothing, preclude nothing; in fact, although they may _name_ things, and convey ideas of such things, they _say_ nothing."[35] When terms are combined to form a proposition, the proposition itself takes on a meaning which is a function both of the particular terms involved and of the particular way in which the terms are arranged in respect to the rules of syntax of the language. Langer sees a similarity between the emergence of meaning in this case and that of painting or music, although neither of these two arts have distinguishable terms. Therefore, she thinks that a consideration of the relation between complex symbols such as word structures and their meanings might provide a clue to the relation between a work of art and its import.

Langer states that she bases her study of symbols on the theory set forth by Wittgenstein in his _Tractatus_

---

[35] _Ibid_., p. 66.

XUM

Logico-Philosophicus.[36] In her explanation of the manner in which the meaning of a proposition is affected by the syntactical arrangement of the terms in the proposition, Langer essentially takes over a view attributed to Wittgenstein. Thus, she states, "The relation between word-structures and their meanings is, I believe, one of logical analogy, whereby, in Wittgenstein's phrase 'we make ourselves pictures of facts'."[37] It would follow that language could only "picture" those facts which are amenable to being "pictured" within the limits of the particular syntax. Accordingly, Langer writes:

> All language has a form which requires us to string out our ideas even though their objects rest one within the other;...This property of verbal symbolism is known as discursiveness; by reason of it, only thoughts which can be arranged in this particular order can be spoken at all; any idea which does not lend itself to this 'projection' is ineffable, incommunicable by means of words.[38]

Langer seems to think that the relation of logical analogy between the form of a complex symbol and what it symbolizes is the requisite relation for all symbolisms and their respective meanings. One should note that she makes this assumption in spite of having noticed crucial differences between art and language. In examining the possibility of music being a symbolic form, she states:

---

[36] Ibid., p. 75.

[37] Ibid., p. 77.

[38] Ibid.

> As such it would have to have, first of all, formal characteristics which were analogous to whatever it purported to symbolize; that is to say, if it represented anything, e.g. an event, a passion, a dramatic action, it would have to exhibit a logical form which that object could also take. Everything we conceive is conceived in some form, though there are alternative forms for every content; but the musical figure which we recognize as such must be a figuration under which we could apprehend the thing referred to.[39]

(One might wonder how there can be alternative forms for the content of an artistic symbol if, as Langer claims, the sense of the symbol in art is bound to the symbol.) Langer continues in the next paragraph, "That musical structures logically resemble certain dynamic patterns of human experience is a well established fact."[40]

In *Feeling and Form*, Langer makes the following comprehensive statement on the nature of the musical symbol and what she takes to be its appropriate content:

> The tonal structures we call 'music' bear a close logical similarity to the forms of human feeling--forms of growth and of attenuation, flowing and stowing, conflict and resolution, speed, arrest, terrific excitement, calm or subtle activation and dreamy lapses--not joy and sorrow perhaps, but the poignancy of either and both--the greatness and brevity and eternal passing of everything vitally felt. Such

---

[39] *Ibid.*, p. 191.

[40] *Ibid.*, p. 192.

> is the pattern, or logical form, of sentience; and the pattern of music is that same form worked out in pure, measured sound and silence.
> Such formal analogy, or congruence of logical structures, is the prime requisite for the relation between a symbol and whatever it is to mean. The symbol and the object symbolized must have some common logical form.[41]

While discursive language, according to Langer, allows us to talk about feelings in general, to form true or false statements about them, it cannot, because of its own discursive form, provide for us any means of adequately conceptualizing them in all their complexity. The arts are symbolic in their own right, each in their respectively different modes, and what they symbolize is sentience or the "life of feeling." As symbolic forms, the arts are legitimate vehicles for conveying knowledge, although what they convey, and how they convey it, is certainly different from "knowledge about matters of fact" conveyed in the form of statements. Through the symbolic form of the art work, the content is presented directly to us for our conceptualization, if only we see it.

One should recall that since the content is embodied in or attached to the symbol, "seeing" the work, in the case of a painting, and understanding the work apparently involve the same mental act. However, "seeing" the work is not necessarily the immediate result of looking at it, and consequently, it is not exactly like seeing the furniture of the room we are occupying. For in the case of seeing a painting, "seeing" the work involves seeing all the visual aspects that arise out of the arrangement of colors on the canvas.

---

[41] Langer, Feeling and Form, p. 27.

Langer is careful to say that while the arts have a "vital import," nevertheless, it is a mistake to think of their significance as their meaning. "Music is not a kind of language. Its significance is really something different from what is traditionally and properly called 'meaning'."[42] The primary reason for Langer's insistence that the term "meaning" is not appropriate when applied to artistic significance is the fact that the symbol does not have an assigned connotation. "The actual function of meaning, which calls for permanent contents, is not fulfilled; for the assignment of one rather than another possible meaning to each form is never explicitly made."[43] Of course, such an assignment of meaning would be impossible since the conceptualization of the import is dependent upon the perception of the symbol. However, the form is capable of connotations, "and the meanings to which it is amenable are articulations of emotive, vital, sentient experiences."[44] The symbol is capable of taking on any import in which there is a congruence of logical form with the symbol. Langer sees this aspect of the symbol as especially significant in respect to the power of the symbol. "The real power of music lies in the fact that it can be 'true' to the life of feeling in a way that language cannot; for its significant forms have that ambivalence of content which words cannot have."[45]

---

[42] Ibid., p. 29.

[43] Langer, New Key, p. 204.

It is important to realize that Langer's view of the relation between a symbol and its meaning or import requires that we should be able to talk about our feelings as themselves having a logical form. She writes, "Although a work of art may abstract from the temporal character of experience, what it renders in its own logical projection must be true in design to the structure of experience."[46] It seems that Langer's notion that there is a structure or logical form to experience derives from her views on the relation of thought to feeling.

> It is perception molded by imagination that gives us the outward world we know. And it is the continuity of thought that systematizes our emotional reactions into attitudes with

---

[44] *Ibid.*, p. 203.

[45] *Ibid.*, p. 206.

[46] Langer, *Feeling and Form*, p. 373.

> distinct feeling tones, and sets a certain scope for an individual's passions. In other words: by virtue of our thought and imagination we have not only feelings, but a *life of feeling*.[47]

Thus our feelings are not just something we undergo, but because they too are transformed by thought we experience them as forming a kind of subjective unity. It is this "life of feeling" or subjective unity that is symbolized by the arts.

The view that there is a structure to our experiences is open to serious questioning. Granted that there is some connectedness between our experiences and feelings, do we really want to say that this connectedness results in our having a "life of feeling" or that our feelings have a subjective unity? And even if we think that we can speak about our having a "life of feeling" we may still want to question whether or not we can attribute to this unity of experience a structure or logical form. The notion of there being a unity of experience suggests that there is something in virtue of which it is a unity. However, the fact that our experiences are informed by thought does not in itself imply that as a consequence of this influence our experiences and feelings acquire a logical form or structure. I think that the notion that our feelings have a logical form is extremely dubious, and consequently, if a work of art is a symbol of sentience, the relation between the symbol and its import must be other than that of analogous logical forms.

---

[47] *Ibid.*, p. 372.

If art is a symbol of sentience, then the artist, in creating a work, is essentially presenting his knowledge of the emotive life for the conceptualization of others. For Langer, there is no possible separation between the creation of a work completely "alive" and interesting visually and the creation of a symbol in which every part contributes to the symbolic import of the totality.

> Creation of 'virtual space' is common to all works of plastic art; but that is only the making of the universe in which the symbolic form exists. Expressiveness has endless degrees. Complete artistic success would be complete articulation of an idea, and the effect would be perfect livingness of the work. 'Dead spots' are simply inexpressive parts. From beginning to end, every stroke is composition; where that is attained there is truly 'significant form.'[48]

The artist's knowledge of feeling and his ability to create an adequate symbol are in some sense merged. He too needs the symbol to conceptualize his knowledge, since the conception is bound to the symbol. The creation of the work of art involves the physical act of the arrangement or manipulation of colors, and in the process of arrangement or manipulation, new aspects of the "life

---

[48] *Ibid.*, p. 79.

XUM

of feeling" may be discovered.[49] The artist must, of course, be able to recognize when he has made such a discovery through the creation of a new symbol. It would seem, therefore, that the artist needs two related sorts of knowledge. He must have knowledge about the "life of feeling" since he must be able to recognize when his creation is adequate to that life; and he must have knowledge about the colors and tones out of which he creates his symbol. The second sort of knowledge involves more than what would fall under technical skills. He must know how to arrange those colors or tones so that they do indeed create something--so that their existence as tones or colors is superseded by the created image. It would follow that the artist's training must be more than a training in how to paint or how to sculpt. Langer believes that training should be properly seen as "the education of feeling, as our usual schooling in factual subjects,...is the education of thought."[50] Social conditioning does not constitute the education of emotion. Instead, the real education of emotion consists in "the tacit, personal, illuminating contact with symbols of feeling."[51]

---

[49] Ibid., p. 374.

[50] Ibid., p. 401.

[51] Ibid.

If contact with the symbols of feeling (works of art) leads to the real education of emotion, it would follow that those persons who have the greatest amount of such contact, by spending the most time looking at paintings and sculpture, hearing concerts, or by reading poetry and literature, would be the most emotionally sensitive members of a given society. And artists, whose lives consist of full time contact with works of art, both in the creation of their own works and in coming in contact with the works of others, should be the cream of any society in respect to emotional sensitivity. I doubt if this is the case. I doubt, first of all, whether concert goers and museum seekers are emotionally any more sensitive than certain other persons who may never have been to a concert or to a museum. Some people seem to be able to acquire knowledge of the human emotive life without any contact with the "symbols of feeling" at all. Secondly, I doubt whether artists form any kind of emotionally sensitive elite in respect to the rest of society. And it seems perfectly possible to me for a person to be a very good composer, for example, and yet to be rather naive in his emotional understanding. Perhaps Langer would want to say that the person in question is creating his works through processes originating in his unconscious mental life. But if works of art really do

XUM

provide us with a symbolic form through which we can conceptualize the emotive life of man and, hence, acquire knowledge of that life, it would be difficult to explain how a person constantly conversant with those symbols and even perhaps himself a creator of those symbols could fail to attain the knowledge which is supposed to be displayed by those symbols. I suspect that Langer is simply mistaken about how one educates oneself about the emotive life of man, because she is mistaken about the symbolic nature of works of art. This is not to claim that works of art never communicate anything of emotive import. But it is to question Langer's central thesis, that the primary function of a work of art is to symbolize the "life of feeling."

In the literature criticizing Langer, a great deal of emphasis has been placed on the fact that her theory involves the notion of an aesthetic intuition through which we grasp the symbol and its import. I do not see any point in repeating these criticisms, which I think are thoroughgoing and inescapable by Langer's theory. However, I want to discuss briefly the way in which intuition is needed in her theory because that discussion can lead to some other interesting difficulties facing Langer. And, ultimately, it will lead to my suggestion that Langer has not been able to develop a theory of

XUM

symbolic significance based upon the unique properties of the work of art because she has been caught up in the pervasiveness of the model of discourse in spite of her own awareness of that danger.

The need for intuition in Langer's theory arises from the fact that the import of the symbol is not something which can be seen or heard since it is not itself visual or auditory. We see the colors of the painting, and we also see the created space and all the other aspects that are visual in nature, whether or not they are given properties or emergent properties. But we cannot in a similar manner "see" that the form of the work is the form of feeling. Consequently, we must intuit that what we are seeing is the form that feeling would take if feeling were visual.

It seems that the intuition would always accompany the act of "seeing" the work so long as one were "seeing" all of the visual aspects of the work.[52] This follows from Langer's claim that the sense is always bound to the symbol, and that the symbol, in the case of painting, is entirely visual. The same would hold for hearing auditory properties of a musical work. Consequently, any perceiver who is aware of all of the visual aspects of the work should be having the accompanying intuition. It is difficult to guess how Langer would answer a person who claimed to be seeing all the visual aspects of the work or hearing all the auditory aspects of a musical work, and yet failed to have the accompanying intuition. But there are many such people, including artists of considerable repute. The following statement clearly captures this central difficulty with the view that art is a symbol of sentience:

---

[52] The theory suggests that only if one were seeing or hearing all the aspects would one have the accompanying intuition. One needs to ask whether the theory could account for the fact that people often say that they come to hear more and more of the interesting perceptual features of a composition with each listening, and they regard each listening as aesthetically significant even if they never reach the point of being able to say they have heard all the aspects of the work in questions.

> If it were correct that the significance of music lies solely in its iconic representation of man's inner life, true musicality would require nothing less and nothing more than hearing music as a tonal analogue of emotive life. But it is neither necessary nor sufficient to hear music in this way in order to arrive at an appropriate aesthetic appreciation of music...But it is a universal characteristic of all musical listening that we hear a piece of music as a Gestalt which gradually takes shape in a dynamic process of tonal motion and which fills and fulfills the stretch of time that it needs for its completion.[53]

The criticisms which have been presented above were not intended to be exhaustive. I have argued that Langer's contention that a work of art has an analogous logical structure to that of the life of sentience is dubious since the notion that the life of sentience has a logical structure is itself highly dubious. Furthermore, the view that works symbolize the life of sentience has implications, in respect to how one experiences works and the kinds of knowledge one can attain through such experiences, which are not in accord with the facts. Much of Langer's difficulty in the development of this portion of her theory may stem from her belief that the relationship of analogous structures must obtain for a work of art to be capable of symbolizing anything. That belief is itself based upon a questionable general theory of the relationship between complex linguistic symbols and their meanings.[54] And even if the theory could be shown to hold for language, there is a separate problem which Langer overlooks of demonstrating its applicability to art. One should note that if the relationship of analogous structures is not the requisite relationship

---

[53] K. Mitchells, Review of The Musical Symbol: A Study of the Philosophic Theory of Music, By Gordon Epperson, British Journal of Aesthetics, X (January, 1970), 88.

---

[54] Ernest Nagel argues that the requirement for analogy between the pattern exhibited by a complex linguistic symbol and the pattern found in what the symbol represents cannot be met. Furthermore, the existence of analogy, as in the case of a map whose structure is similar to the area it represents, cannot be a sufficient condition for symbolization. The map "can serve as a representation of the area only if certain rules of interpretation are used." See his review of Philosophy in a New Key, Journal of Philosophy, XL (May, 1943), 324.

XUM

between complex symbols and their meanings, then the claim that works of art have analogous structures to that of the life of sentience would be irrelevant to an argument that works of art symbolize that life. But one should then wonder what other relationship might obtain.

Dualism in Langer's Theory

The criticisms presented above are sufficiently strong to give rise to grave doubt concerning the theory that works of art symbolize sentience. However, one might still want to question whether one must therefore conclude that works of art are not symbolic in any aesthetically significant sense at all. Nelson Goodman's work indicates that the answer to that question is "no." In respect to Langer's work, it is revealing to consider the question of whether Langer's conception of the artistic creation as a symbol logically implies her position concerning the way in which the symbol refers and the kind of import the symbol has.

In reconsidering Langer's view of what the artist has created, one should be aware of the fact that her position is essentially dualistic. On the one hand, Langer insists that the artist is creating a purely perceptual object, in the case of the plastic arts and music; he is creating an object which has only visual properties in the one instance and only auditory properties in the other. Thus, when Langer speaks of the created image which arises from the process of arranging colors on a surface, she stresses that the object be treated "as a complete entity with only visual attributes and relations. It has no others; its visible character is its entire being."[55] And Langer goes to great length to explain the unique character of the visual image through the creation of "virtual space."[56]

On the other hand, Langer insists that the same act of creation which produces a purely perceptual object also produces a symbol whose import is given to our insight through an act of intuition rather than to our sight. Hence the visible character of the work is no longer its entire being. As one may recall, Langer states that the creation of "virtual space" is only "the making of the universe in which the symbolic form exists."[57] Granted, Langer insists throughout that the import of the work is bound to the perceptual object which is the symbol. Nevertheless, she must have been aware of the fact that the life of sentience is not perceptual in the way that virtual space is perceptual. The painter is supposed to be creating something in his work which in one sense is entirely spatial, and in another sense is entirely expressive of something which, on the face of it, is totally removed from the created spatial world. The following statement conveys the dualism in Langer's view of the art work.

---

[55] Langer, Feeling and Form, p. 48.

[56] A significant portion of Langer's discussion in Feeling and Form is devoted to an exploration of the multidimensional properties of the created images for each of the various art forms. And in the plastic arts and music, the created image is entirely perceptual in nature.

[57] Langer, Feeling and Form, p. 79.

> The purpose of all plastic art is to articulate visual form, and to present that form--so immediately expressive of human feeling that it seems to be charged with feeling--as the sole or at least paramount, object of perception. This means that for the beholder the work of art must be not only a shape in space, but a shaping *of* space--of all the space that he is given.[58]

As we have seen, one must perceive both aspects at the same time. One must perceive the work as a shaping of space and at the same time perceive, through an act of intuition, that the work is an immediately expressive symbol of sentience. And supposedly the import is lost if one sees the work as a shaping of space but fails to see that the form is expressive in the requisite manner.

Langer is apparently not fully aware of what I refer to as her dualism in regarding works of art. The created perceptual object *is* the symbol of sentience. As she states it, the work is "so immediately expressive of human feeling that it seems to be charged with feeling."[59] However, the claim that a visual work exists primarily to be seen, as an intrinsically interesting perceptual object, seems to me to be different from the claim that a visual work must be fully seen in order to be seen through in an aesthetic intuition which grasps the real import. In the latter case, the perceptual work becomes a vehicle providing a form by which we can conceptualize human emotive life just as sentences in discursive language allow us to conceptualize those aspects of experience which are amenable to its symbolic form. If this discussion is correct, then, inadvertently, Langer has broken down the distinction which she has held to be crucial between art and comment.

---

[58] *Ibid*., p. 71.

It was precisely in order to maintain the distinction between art and comment that Langer claimed that the sense or import of a work of art was to be bound to the form of the symbol. If art is to be a symbol of sentience, then one must question whether the distinction can be maintained. In terms of Langer's discussion, the work as a symbol of sentience would be pointing to something distinct from itself since human emotive life is

---

[59] *Ibid.*

XUM

distinct from art works even if art works symbolize that life. Also, one should note that the fact that the form of the work may be analogous to the form of human emotive life is not a sufficient condition for the import to be bound to the symbol. These considerations seem to indicate that if one wants to claim that a work has an aesthetic import that is bound to the intrinsically interesting perceptual features of the work, then either the import must be itself perceptual or else it must at least have a stronger tie to the perceptual features of the work than is given by the relationship of analogous structures--though what that tie could be is unclear to me.

Langer obviously regards both aspects of her theory--that pertaining to the intrinsic interest afforded by the work and that pertaining to the work's referential properties--as equally essential to a coherent theory of the significance of form. If a work is merely a symbol similar to the symbols of language then the artist's concern over color and form or over complex musical structure would be inexplicable as would be the fascination that the viewer or hearer has with these features of the work. But Langer is equally convinced that the work cannot merely be a perceptual object no matter how interesting or even exquisite its features.

In Philosophy in a New Key, Langer argues against the possibility of viewing musical structure as significant without allowing that the structure relates to anything beyond itself. In referring to those persons who have argued for the autonomy of music in respect to meaning, Langer states:

> They are suddenly faced with the dichotomy; significant or meaningless. And while they fiercely repudiate the proposition that music is a semantic, they cannot assert that it is meaningless. It is the problem, not the doctrine, that has infected them. Consequently they try to eat their cake and have it too, by a logical trick that is usually accepted only among mathematicians--by a statement which has the form of an answer to the question in hand, and really commits them to nothing. Musical form, they reply, is its own content; it means itself.[60]

For Langer, the question "what makes artistic form significant?" has only one possible answer--that it is a symbolism. But form can only be significant as symbolism if that form has semantic import. The import must be something other than the form itself; rather it must be something to which the form can refer. In the light of this line of thinking, the claim that music is its own content is incoherent to Langer. Music must have have semantic significance since semantic significance is the only kind of significance that a symbolism can have, and to claim that music is not symbolic although articulate would be to disallow any reasonable explanation of the place which music has had in the development of human culture.

---

[60] Langer, New Key, p. 201.

Suggestions for a New Look at "Significant Form"

If Langer is wrong in claiming that art is the symbol of sentience, then one might wonder if anything else can be established, less problematically, as the import of the aesthetic symbol. However, one would think that a solution of this sort, if it existed, would be obvious to anyone who seriously attends to the arts. Either they "see" the import or all their looking or listening is in vain. Must one then accept the alternative left by Langer, that music has no more significance than that of a symptom of the artist's feelings or a signal to evoke certain feelings in the listener?

Langer's work, therefore, raises the highly relevant question of whether the notion of significant form requires a meaning outside of or apart from the form to which the form refers. There are a number of possible alternatives to be considered in exploring this question. One might consider whether a work of art or sections thereof can be cognitively significant without having semantic import. One would then be trying to establish that the range of what could be said to have cognitive significance is broader than the range of that which has semantic import. If one could make good this sort of claim, then there might be grounds for reconsidering what is to count as a symbolism. One might want to extend the term "symbolism" to whatever can be said to have cognitive significance even though some of those things having cognitive significance might not have semantic significance.

Alternatively, one could consider whether the form of a work can have semantic import in some other way than Langer suggested. In exploring this possibility one might look for symbolic features within the work instead of requiring that if the work is symbolic it must function as a prime symbol. This latter possibility must, I think, avoid a number of difficulties which Langer foresaw. One must be able to say not only that the work contains elements which function symbolically but that the symbolic import of such elements is of aesthetic significance. In order to be able to make this sort of claim, one must be able to provide an account of the symbolic import which explains the intrinsic interest afforded us by the complex visual features of a work in the plastic arts or by the complex auditory features of a musical work. That is to say that an account of significant form in art must at the very least explain why works of art are perceptually so interesting to us, and it cannot do so if it reduces the work to the role of vehicle.

I suspect that Langer's failure to consider alternatives to the position that semantic significance is the only kind of significance available to works of art may be the result of the pervasiveness of discursive language as a model of significance. Langer is clearly aware that the language model has limitations. As we have seen, she warns against carrying the characterists of linguistic symbols over into our expectations of other modes, and she insists that one cannot properly refer to the import of the artistic symbol as a kind of meaning. Nevertheless, she forgets her own warning when she assumes that the "picturing" relation, which she believes to be true of complex linguistic symbols and their meanings, can be generalized to all symbols. Furthermore, she assumes without question that there is a basic similarity to all forms of symbolisms in that all symbolic significance must be semantic in nature even if the form of the semantic significance can vary with the type of symbolism.

If one questions Langer's claim that works of art can only be significant in the sense of having an import referred to by the structure of the work, and external to the work, then new ways of construing significance in the arts may be brought to light. Perhaps one does

XUM

not need to start from the beginning on this problem, but one should simply pay stricter attention to the features of the works of art themselves. If we want to restrict the idea of a semantic to clear cases in which the symbol refers to something outside itself, then we must seek an alternative to the dichotomy, "significant or meaningless." But in any case, we must be aware of the fact that so long as we look to discursive language as our model for the arts, our understanding of the latter will certainly be subject to the limitations of our understanding of the former. Consequently, if we should decide that the requisite meaning relation is the same for language as for the arts, regardless of the apparent differences in the symbolic forms, then we still must be very sure of our understanding of language before assuming that it is our starting point.

In the relatively short period since Langer published Feeling and Form we have become increasingly aware that we simply do not yet understand the relationship between syntax and semantics in ordinary language. Noam Chomsky insists that the relation of meaning to syntactic structure can only be studied after the syntactic structure of language is determined on independent grounds.[61] In

---

[61] Noam Chomsky, Syntactic Structures (The Hague: Mouton and Co., 1963), p. 17 footnote.

Aspects of the Theory of Syntax he writes:

> It is clear, as Katz and Fodor have emphasized, that the meaning of a sentence is based on the meaning of the elementary parts and the manner of their combination. It is also clear that the manner of combination provided by the surface (immediate constituent) structure is in general almost totally irrelevant to semantic interpretation, whereas the grammatical relations expressed in the abstract deep structure are, in many cases, just those that determine the meaning of the sentence. However, there are cases that suggest the need for an even more abstract notion of grammatical function and grammatical relation than any that has developed so far, in any systematic way.[62]

Chomsky ends his discussion of the boundaries of syntactic and semantic structure with the following words:

> To conclude this highly inconclusive discussion I shall simply point out that the syntactic and semantic structure of natural languages evidently offers many mysteries, both of fact and or principle, and that any attempt to delimit the boundaries of these domains must certainly be quite tentative.[63]

While our understanding of reference in respect to words in a vocabulary seems straightforward, such words do not in themselves constitute a language. And Chomsky's statements indicate that our understanding of the way or ways in which language is meaningful is at best incomplete. I think that Langer was correct in choosing to compare works of art with complex arrangement of words,

---

[62] Noam Chomsky, Aspects of a Theory of Syntax (Cambridge, Mass.: The M. I. T. Press, 1965), pp. 161-62.

[63] *Ibid.*, p. 163.

XUM

with language elements, as opposed to comparing such works with words. But I also think that we need to be wary of using one obscure area to elucidate another obscure area. It would seem, therefore, that in dealing with the arts we might do just as well to try to look for clues to their symbolic natures in their own structures. In any case, it seems to me that one way to reach a decision of whether or not we should require the same form of significance in the arts as in language is to fully explore the arts for all the possibilities of significance that they may exhibit.

We are concerned with the question of significant form which, happily, is a smaller area of concern than that of significance in art in general. I have suggested two kinds of explorations that may provide alternatives to the dilemma with which Langer has left us. These suggestions will be taken up in the next two chapters. In Chapter II we will consider the second of the two suggestions, that perhaps works of art are symbolisms in that they have semantic import, but that they carry that import in some other way than Langer thought. More specifically, we will consider Nelson Goodman's discussion of representation, expression, and exemplification as carried out in Languages of Art. Goodman does not directly concern himself with the problem of significant form.

Nevertheless, his discussion of the various modes of symbolism employed in the arts may provide us with some insight into our own problem, and, at the very least, his discussion is useful in pointing out to us the fact that Langer was placing far too many constraints on the problem of significance in art by equating that problem with the problem of significant form and by requiring that the form in its totality must carry the symbolic import.

In Chapter III we will be focusing more directly on form or structure itself in the perceptual arts by considering Leonard Meyer's application of information theory to music. In that chapter, the first of the two suggested alternatives to Langer's dilemma will be explored in that Meyer's work can be viewed as a systematic attempt to explain how form or structure in art can be cognitively significant without necessarily having semantic import.

Langer has taught us that the test for the appropriateness of any final theory of the significance of form must be the adequacy of the theory in accounting for what we "see" in seeing visual art works and what we "hear" in hearing music. In either case the theory must account for seeing something more than arranged colors and hearing something more than arranged tones, and it must relate the significance of works directly to the perceivable qualities of the works.

CHAPTER II

REPRESENTATION, EXPRESSION, AND EXEMPLIFICATION AS SYMBOLIC MODES

Labeling: An Important Symbolic Function

In many respects, Nelson Goodman begins his discussion of art from a point of view similar to that of Susanne Langer. Goodman's analysis of the arts can be viewed as an attempted explanation of the kind or kinds of symbolization involved in the arts, and, consequently, of the kind or kinds of cognition involved in "experiencing" the arts. Goodman does not argue that the arts are symbolic, but he takes that assumption for granted throughout his work. And he insists throughout on the cognitive nature of the arts. Indeed, it would follow that insofar as the arts are symbolic they are also cognitive.

Also like Langer, Goodman extends the realm of the cognitive beyond that of discursive language. He rejects the rather common distinction between knowledge and experience which delegates experience to the realm of precognition. In respect to visual perception, Goodman rejects the myth of the innocent eye. The eye, he writes, "selects, rejects, organizes, discriminates, associates, classifies, analyses, constructs."[1] Consequently, there is no "raw material" of perception out of which the mind can forge knowledge. According to Goodman, the mind does not simply organize, compare, and interpret the material it receives, for the interpretation is in the reception. "Moreover," he states, "what has been received and what has been done to it cannot be distinguished in the finished product. Content cannot be extracted by peeling off layers of comment."[2]

In spite of the many similarities between the assumptions with which Langer and Goodman work, the divergence between their respective views is immediately apparent. As we have seen, Langer argues that in order to explain the concern of every artist which is the perfection of form one must show that artistic form is symbolic. And she quickly arrives at the conclusion that if the form is symbolic it must be in its entirety a symbol, which she calls a prime symbol. The notion of a prime symbol suggests that the artistic work is not made up of parts which are in themselves symbolic, or if it contains such elements, their symbolic properties are not relevant to the work as an aesthetic symbol. Thus, Langer viewed representation in art works as a mere device for creating a spatial illusion. The symbolic properties of representation were not in themselves of aesthetic significance; such properties could not account for the interest of the perceptual object itself.

---

[1] Nelson Goodman, Languages of Art: An Approach to a Theory of Symbols (Indianapolis: The Bobbs-Merrill Company, Inc., 1968), pp. 7-8.

[2] *Ibid.*, p. 8.

Goodman not only does not concern himself with the notion of a prime symbol in respect to art works but also proceeds to demonstrate that part of the aesthetic significance of art works lies in the fact that they can and often do contain elements which function as representational, exemplificational, or expressive symbols. In fact, a significant part of his work is concerned specifically with an analysis of the ways in which works of art or parts therein do function as representational, exemplificational or expressive symbols, sometimes functioning in more than one of these modes at the same time.

What then does Goodman see about the symbolic function of representation that leads him to discuss its properties at length while Langer saw it as a mere device for creating a spatial illusion? To understand Goodman's position we must review his analysis of representation as denotation. Goodman examines the common belief that representation is primarily a kind of copying. He quickly concludes:

> that a picture, to represent an object, must be a symbol for it, stand for it, refer to it; and that no degree of resemblance is sufficient to establish the requisite relationship of reference. Nor is resemblance necessary for reference; almost anything may stand for almost anything else....Denotation is the core of representation and is independent of resemblance.[3]

After discussing at length the dissimilarity between language and art as pointed out by Langer, we are suddenly led to consider an aspect in which art may be more like language than we ever supposed.

Goodman distinguishes between pictures that are man-representations and pictures which represent a man. "A picture must denote a man to represent him, but need not denote anything to be a man-representation."[4] To say that a picture is a "man-representation" is to apply a label to the picture itself, to classify the picture as being of a certain sort. But such a classification does not in itself tell us what the picture denotes, for not all man-representations denote men. However, in representing a man as a man or as anything else a picture is itself a label.

> Representations, then, are pictures that function in somewhat the same way as descriptions. Just as objects are classified by means of, or under, various verbal labels, so also are objects classified by or under various

---

[3] Ibid., p. 5.

[4] Ibid., p. 25.

> pictorial labels. And the labels themselves, verbal or pictorial, are in turn classified under labels, verbal or nonverbal.[5]

It should be noted that labeling is not to be viewed as the mundane assignment of an arbitrary verbal or visual description to an object or event. A representation, according to Goodman, is a characterization, a way of construing that which it represents, similar to a way of seeing. In distinguishing a representation from a copy, Goodman is insisting that representing "is not a matter of passive reporting."[6]

> Classification involves preferment; and application of a lable (pictorial, verbal, etc.) as often effects as it records a classification. ...The making of a picture commonly participates in making what is to be pictured. The object and its aspects depend upon organization; and labels of all sorts are tools of organization.[7]

If one understands labeling in these terms, one immediately realizes that the making of a new pictorial label is a genuinely creative activity and an activity which can make important contributions to knowledge. "The marking off of new elements or classes, or of familiar ones by labels of new kinds or by new combinations of old labels, may provide new ingisht."[8]

---

[5] *Ibid*., pp. 30-31.

[6] *Ibid*., p. 31.

[7] *Ibid*., p. 32.

[8] *Ibid*., p. 33.

One should note that Goodman's understanding of pictorial labeling would apparently meet Langer's requirement that in an aesthetic symbol the sense of the symbol must be bound to the symbol itself. (Only a "bound symbol" could account for the interest we have in the work itself.) If the picture participates in the creation of the very thing it is labeling, then one needs the picture to see what it represents in that particular way, or in some cases, simply to see what it represents at all. However, such classifications might be said to take hold after repeated exposure to the picture or pictures effecting the classification. And after they take hold, one would have learned to see things according to the classification independently of the label that effected the new classification. Consequently, the sense of the symbol would only be bound to the symbol until that point when the viewer could employ the classification on his own. At that point, when a representation loses its novelty in effecting a new organization, one could suppose that it would also lose its interest as a representation.

It may be illuminating at this point to explore briefly some of the differences in how Langer and Goodman might approach a work whose content is largely representational. Consider one of Warhol's "Campbell's soup can" paintings. The can-of-soup-representation is painted rather "realistically" on an otherwise white or cream canvas, and it is centered in respect to the canvas's four edges. How might Langer and Goodman each explain the fact that the work in question is often considered to be visually boring? Langer's focus would be on the fact that the work is spatially "dead" in spite of the three-dimensionality of the soup-can-representation. The artist has failed to create a multidimensional spatial illusion whose form is analogous to the form of feeling. Goodman might be more apt to point out the fact that many works, including the one in question, should not be said to fail because they do not create a spatially interesting object since they do not attempt to do that at all. Instead, if they fail, they may do so because as labels the realignments they effect are not sufficiently interesting or important. (This is, of course, to ignore the exemplificational and/or expressive features which may also be a part of the work.)

It seems that representation may have a value beyond that recognized by Langer. However, in a world which is densely populated with pictorial symbols, one must ask why certain pictorial symbols continue to fascinate viewers long after they have "reorganized" our perception of the world to which they refer. A possible answer in keeping with Goodman's analysis of representation is that the most interesting of representations are those in which the organization created is of such complexity that it could never take hold. Consequently, the picture is always needed to see what is being pictured. In Langer's terms, the representations being considered are ones in which the import would always be bound to the symbol. Without this kind of solution one might have grounds for arguing that while Goodman has shown that representation is a genuinely creative activity as well as cognitively significant, he has not shown that representation is aesthetically significant. (The argument would in part hinge on the question of whether aesthetically significant features of a work are those features which have temporal lastingness.) But even if there are certain representations which effect a reorganization which can never be seen apart from the representation itself, the question raised above has not been adequately answered. One can still wonder why we continue to be interested in certain representational works long after they have effected realignments of our perception of the world and long after they have contributed to knowledge through those realignments.

In order to fully appreciate Goodman's discussion of labeling as an important symbolic function of art works, we should also take into consideration his view of expression and exemplification. What does one mean by saying that a painting expresses sadness, or that it is a sad painting? A gray painting actually possesses a gray color, is literally gray; but a picture can only be figuratively sad. "Expression, then, can be tentatively and partially characterized as involving figurative possession."[9] In the case of the gray painting, the painting is denoted by the predicate "gray." So it seems that a painting which expresses sadness is one that is metaphorically denoted by the predicate "sad." But possession, whether literal or metaphorical, is apparently not sufficient for expression to be a mode of symbolization, since that which is denoted does not itself necessarily refer to anyting at all. Consequently, expression must involve the reference of the picture to what it expresses, to the predicate that denotes it.

> The symbolization or reference here runs, as we have seen, in the opposite direction from denotation--runs up from rather than down to what is denoted. An object that is literally or metaphorically denoted by a predicate, and refers to that predicate or the corresponding property, may be said to exemplify that predicate or property. Not all exemplification is expression, but all expression is exemplification.[10]

Expression, then, is exemplification in which an object

---

[9] Ibid., p. 51.

[10] Ibid., p. 52.

XUM

is metaphorically denoted by a predicate and refers to that predicate or the corresponding property.

An object such as a tailor's swatch "exemplifies only those properties that it both has and refers to."[11] While we might say that the properties the object has are intrinsic to it, this is not the case with those properties to which it refers. We have yet to consider what determines properties that an object refers to in exemplification. Here, we may be dealing with alternative systems of symbolization. According to Goodman, "just which properties of a symbol are exemplified depends upon what particular system of symbolization is in effect."[12] Goodman explains this point with the example of the tailor's sample. Ordinarily the sample exemplifies certain properties of the material from which it is cut. But under certain circumstances the sample might be offered as an example of a tailor's sample. In the latter case it would be functioning as part of a different symbol system than in the former.

Is it possible for an object to exemplify an unnamed property, or is exemplification, on the contrary, totally language dependent? Goodman revises his original stipulation of exemplification of predicates as being too narrow. We should instead see exemplification as obtaining between a sample and a label. By introducing the notion of labeling in general into the discussion of exemplification, the mode of symbolization acquires greater interest, for we should remember that pictorial representations are labels also. Goodman writes, "not all labels are predicates; predicates are labels from linguistic systems. Symbols from other systems--gestural, pictorial, diagrammatic, etc.--may be exemplified and otherwise function much as predicates of a language."[13] The recognition that there are symbols which refer to themselves adds further interest to the situation. "A symbol that denotes itself also exemplifies itself, is both denoted and exemplified by itself."[14]

---

[11] Ibid., p. 53.

[12] Ibid.

The following passage on dance indicates the suggestiveness of Goodman's development of the symbolic function of exemplification:

> Some elements of the dance are primarily denotative, versions of the descriptive gestures of daily life (e.g., bowings, beckonings) or of ritual (e.g., signs of benediction, Hindu hand-postures). But other movements, especially in the modern dance, primarily exemplify rather than denote. What they exemplify, however, are not standard or familiar activities, but rather rhythms and dynamic shapes. The exemplified patterns and properties may reorgnize

---

[13] *Ibid.*, p. 57.

[14] *Ibid.*, p. 59.

XUM

> experiences, relating actions not usually associated or distinguishing others not usually differentiated, thus enriching allusion or sharpening discrimination. To regard these movements as illustrating verbal descriptions would of course be absurd; seldom can the just wording be found. Rather, the label a movement exemplifies may be itself; such a movement, having no antecedent denotation, takes on the dutires of a label denoting certain actions including itself. Here, as often elsewhere in the arts, the vocabulary evolves along with what it us used to convey.[15]

Having explored the realm of exemplification, we should briefly reconsider expression. Expression, it may be recalled, is a special case of exemplification, namely, metaphorical exemplification. Goodman stresses the fact that metaphorical possession of a property is, nevertheless, possession. The application of a metaphor to describe a pictorial property is not an arbitrary application. "A symbol must have every property it expresses; what counts is not whether anyone calls the picture sad but whether the picture is sad, whether the label 'sad' does in fact apply."[16] Of course, relating a pictorial symbol to a metaphor might strongly influence the way the picture is seen by singling out certain properties and associations for attention. One might say, "I never realized it looked like that, but now I see it."

---

[15] Ibid., pp. 64-65.

[16] Ibid., p. 88.

However, one could also deny the applicability of a metaphor just as one could deny the applicability of a literal label.

> Pictures are not more immune than the rest of the world to the formative force of language even though they themselves, as symbols, also exert such a force upon the world, including language. Talking does not make the world or even pictures, but talking and pictures participate in making each other and the world as we know them.[17]

Goodman has distinguished the three modes of symbolization--representation, exemplification, and expression--each in respect to the labeling relation involved, and he has shown how labeling can be a highly complex and a creative activity. Representation is distinguished from linguistic denotation by involving depiction rather than description. And expression and exemplification are distinguished from representation in that they involve display rather than depiction. One should not, however, presume that to display or to depict is to do something obvious or simplistic as compared with description, or that no special effort is required to understand the symbolic modes of art. In fact, on the basis of the analysis summarized above and the notational analysis of painting as syntactically and semantically dense, Goodman comes to the opposite conclusion. In respect to painting he writes:

---

[17] *Ibid.*, pp. 88-89.

> I have held, on the contrary, that we have to read the painting as well as the poem, and that aesthetic experience is dynamic rather than static. It involves making delicate discriminations and discerning subtle relationships, identifying symbol systems and characters within these systems and what these characters denote and exemplify, interpreting works and reorganizing the world in terms of works and works in terms of the world.[18]

I believe that Goodman would allow us to stretch the metaphor even further and say that we must also "read" a dance and even a musical composition.

The concept of "reading" a work of art is not new to discussions of the kinds of activities involved in aesthetic experiences. It is much to Goodman's credit that he provides some hard content to what is normally left at being merely suggestive. However, I intend to argue that "reading" a painting includes an activity that is not really encompassed by any discussion of representation, exemplification, and expression.

Hearing Structural Features Versus Hearing Expressiveness

In evaluating Goodman's discussion of the various symbolic modes employed by the arts, I do not want to dwell upon the details of his analysis. There has been considerable discussion of his work in the relatively short time since its appearance, and in some of this discussion, the various aspects of his analysis of representation, exemplification, and expression have been questioned.[19] However, I suspect that even if many of the details of this portion of his work prove to be in need of reworking, his work will remain a monument in its support of the position that works of art have symbolic features and that through their various modes of symbolization works of art make genuine contributions to our knowledge.

---

[18] *Ibid*., p. 241.

We are concerned with the extent to which Goodman's work can provide us with any insights into the significance of structure or form in the perceptual arts. While Goodman never directly takes up this question in his work, he clearly thinks that his discussion of the "languages of art" has some bearing on the question. Goodman's position on the relevance of his work to the question of the significance of structure in art is made evident in his response to criticisms of his work put forward by Benjamin Boretz.

---

[19] Goodman's work has aroused the interest of psychologists as well as philosophers. Two particularly interesting papers by psychologists involved in perception theory challenge Goodman's contention that resemblance is not even a necessary condition of representation. See Julian Hochberg, "The Representation of Things and People," in Art, Perception, and Reality by E. H. Gombrich, Julian Hochberg, and Max Black (Baltimore: The John Hopkins University Press, 1972), pp. 47-94; and see also James J. Gibson, "The Information Available in Pictures," Leonardo, IV, 27-35.

XUM

In a paper delivered at a symposium devoted to Goodman's *Languages of Art*, Boretz argues that expressiveness is not musically significant since labels such as "sadness" can be attributed to works differing widely in detail and hence are not relevant to the identity of a musical work. He suggests that since such labels are so general in application, there is little reason to think that they refer, even metaphorically, to any property of the work at all.[20] Furthermore, he suggests that Goodman is guilty throughout *Languages of Art* of avoiding "music-structural questions."

In answering Boretz, Goodman addresses himself explicitly to the way in which his analysis of symbolism in art relates to the question of structure. He states:

> Admittedly, saying that a musical work is sad--like syaing that it is long or rather loud--is pretty vacuous; but this is because sadness, like length and loudness, is a commonplace, obvious, and general property, so that its ascription to a work provides little interesting information.[21]

However, Goodman continues the paragraph by arguing that descriptions of expressive features are often most revealing.

---

[20] Benjamin Boretz, "Nelson Goodman's *Languages of Art*; From a Musical Point of View," *Journal of Philosophy*, LXVII (1970), 547-48.

[21] Nelson Goodman, "Some Notes on *Languages of Art*," *Journal of Philosophy*, LXVII (1970), 568.

> To describe a work or passage as muscular, electric, spatial, curvilinear, brittle, or floating may be to describe metaphorically some recondite and highly important structural features. The notion of *the* structure of a work is as specious as the notion of *the* structure of the world. A work, like the world, has as many different structures as there are ways of organizing it, of subsuming it under categorial schemata dependent upon some or other structural affinities with and differences from other works. ...Understanding a work involves the discovery, the recognition, of unobvious patterns. The requisite breaching of barriers established by habit and literal language often occurs through the importation of schemata from a foreign realm. New likenesses and differences, new relationships and patterns, are thus revealed, and are described by the metaphorical application of these alien terms....Briefly, the feelings a work expresses are properties it has, not because the work literally has feelings, but because the feeling terms applied are metaphorical descriptions of structural (or other) properties the work has and exemplifies. Only at the risk of overlooking important structural features of a work can a formalist ignore what a work expresses.[22]

There seem to be two central points to Goodman's response apart from his reiteration of the nature of reference in expression. We are told that descriptions of expressive features in a work may actually refer to structural properties of the work. Consequently, one's noticing that a passage of a work is brittle might involve noticing how the structure of tones in that passage is similar to that of another passage, in the same or in a different work, which was also noticed to be brittle. Also, we are told that the metaphorical application of a label to a work may help to reveal as well as describe new relationships and patterns in the work which were previously unnoticed. Consequently, talk involving the metaphorical description of features in a work can be an important way to get people to hear what is to be heard in a musical work or to see what is to be seen in a visual work. Certainly critics often engage in this kind of talk about works of art.

---

[22] *Ibid.*

While I think that Boretz is construing Goodman's notion of expression far too simplistically in focusing on the expression of sadness, and he is simply wrong in assuming that terms designating expressiveness could not be correlated with anything observable in musical works, nevertheless, I think that behind his criticism of Goodman's excessive concern with supposedly irrelevant matters there may be some factual points of considerable interest. First of all, Boretz points out the fact that talk about expressiveness in musical works is often used to fill in the gaps between what is heard as music and what he refers to as "noise," which term, I think, can be interpreted as any interference in the process of hearing the unfolding of the composition.[23] Of course, this point would in no way detract from Goodman's contention that expression is an aesthetically significant mode of symbolization employed in the arts. Secondly, and more importantly, I think that Boretz is concerned that listeners who approach works with an ear toward expressiveness often never get beyond noticing the more superficial structural features of a work which carry the more obvious expressive qualities. In attempting to discern what a passage in a particular work expresses, the tendency may be to direct one's attention to finding the appropriate label instead of directing one's attention to what one is hearing. This is not to deny that one might be able to hear what is going on in a passage more clearly after being told to notice a particular expressive quality in the passage. Thirdly, Boretz is aware of the fact that many of those people who supposedly have the most skill in listening to music often claim to be not at all interested in representational, expressive, or exemplificational features in a musical work. Nevertheless, these people are often the most aware of the work in its full complexity in that they hear the recondite but highly important structural features, the unobvious patterns. Must we then conclude that a large portion of the community of people who have the most musical experience are simply blind to an important source of the aesthetic significance of the works they hear?

---

[23] Boretz, "Nelson Goodman's Languages of Art," p. 548.

XUM

I suspect that the confusion here is two-sided. When Goodman states that "only at the risk of overlooking important structural features of a work can a formalist ignore what a work expresses," it is not clear what would constitute ignoring what a work expresses.[24] In the lengthy passage quoted above on the relationship between expressiveness and structure, Goodman talks at first as if being aware of metaphorical descriptions of structural features were the same as being aware of what a work expresses. Thus, the distinction between the kinds of activities involved in hearing structural properties of a work and the kinds of activities involved in describing those properties gets blurred. Furthermore, Goodman fails to make a clear distinction between structural properties of a work which are described metaphorically because they are too elusive to be described literally, and metaphorical properties which the work exemplifies. Only in the latter case is one apparently talking about a symbolic feature of a work.

The above discussion points to an ambiguity in Goodman's claim as to the relationship between expressiveness and structural features of a work. Goodman may be asserting simply that by attending to the expressive features of a work one may be led to hear structural features previously overlooked, or he may be making the stronger claim that one must attend to what a work expresses in order to hear certain structural features of a work. These two claims are two possible interpretations of Goodman's statement that "only at the risk of overlooking important structural features of a work can a formalist ignore what a work expresses." However, I think that the stronger of the two claims does not follow from Goodman's analysis of expressiveness as a symbolic mode.

---

[24] Goodman, "Some Notes on Languages of Art," p. 268.

Structural features of a work can be said to have certain properties which can only be referred to metaphorically. For example, Langer refers to a musical passage having "volume" where the term is intended in its spatial sense.[25] However, it would be consistent with Goodman's analysis of expression to allow that someone could be aware of the property without being aware of the appropriate label for the property. For while the labels we use may be said to participate in making the world we see and hear, one should not forget that we do see and hear many aspects of our world for which we have no appropriate labels. Only if the musical passage in question is expressive of spatial volume must we be aware of the appropriate label, for in the case of expression, the passage must not only have the property in question but it must also function in a symbol system in which it refers to the label denoting it. This is to say that when structural features of a work are expressive, they are so in addition to their having whatever properties they have as structural features.

---

[25] Langer, Feeling and Form, pp. 116-17.

I have been arguing that Goodman's analysis of expression contains no grounds for his maintaining the view, which he may or may not maintain, that one must attend to what a work expresses in order to hear certain structural features of a work. There is, however, one possible exception for which one might want to say that hearing a structural relationship involves being aware of expressiveness. Musical works have been described as having different levels of structures which can unfold simultaneously. Some of these structures might encompass the entire length of the composition while others might have shorter spans for completion, and it is conceivable that structures on different levels have different kinds of organizational properties. Allowing that one makes sense in talking about works in this way, the possibility arises that a structural element may exemplify a musical quality which it can only be said to have metaphorically since that quality actually belongs to structures which function on a different level. A relationship may then be set up by structural elements on two different levels in which one element denotes a property which another element metaphorically has and exemplifies. A two-way reference relationship would exist, and one's awareness of this relationship would actually be an awareness of what an element expresses. At the same time, relationships between levels of structures in a work properly can be said to be structural elements of the work in themselves.

I stated that the confusion in the disagreement between Goodman and Boretz is two fold. I have attempted to explain what I believe is Goodman's confusion on the issue of the relationship between structural properties of a work and expressive properties. I intend to be much briefer with Boretz's confusion, not because I believe that it is the lesser confusion, but because I believe that Goodman does point it out at least in part in his reply to Boretz which I have indicated above. Boretz is apparently concerned with the vacuity of labels designating expressiveness in music. There are two main points to his argument. Firstly, since terms like "sadness" apparently refer to works which differ widely, Boretz contends that such terms do not really refer to anything which can properly be said to be a property of a work. As Goodman's response suggests, Boretz has built his case for the vacuity of expressiveness in general by focusing on what might be one of the most vacuous of terms designating expressiveness. Secondly, as I already indicated, Boretz notices that skilled musical listeners often claim to be unconcerned with expressiveness in works. And he argues that those people who have the most experience in hearing music should be our guides to what there is of significance to be heard. In respect to this second point, I only want to suggest that perhaps when expressive properties are denied aesthetic significance by persons who have a great deal of musical experience, one should inquire what such persons understand expressiveness to be. Boretz's own understanding of expressiveness is apparently inadequate. One should also recall that in the history of aesthetics the issue of what constitutes expressiveness in works of art has been one of the most confused areas of inquiry, and many persons who deny the aesthetic significance of expressiveness today may be attempting to disassociate themselves from the confusions of the past.

That musical works do contain expressive properties is apparent to many listeners. If these properties are aesthetically significant, and I cannot think of any other explanation for why they are written into musical works, then either the formalist is missing something or else he is simply refusing to acknowledge the term "expressive" as appropriate to designate certain properties which, in fact, he does hear. At any rate, the employment of expressiveness may vary from artist to artist and from work to work. And, as I suggested above, only some structures in some works function as part of symbol systems in which they are expressive. Furthermore, in accordance with Goodman's analysis of expression, one need not be aware of the fact that a structural feature is expressive in order to be aware of structural properties which that feature has, with the exception of intra-compositional expression.

In examining the relationship between expressive and structural properties in musical composition, we explored the possibility that structural elements might refer to one-another when one element expresses a quality which is denoted by another element in the same composition. Could a similar situation arise in respect to the symbolic relationship of exemplification? Exemplification, as Goodman understands it, involves literal possession of a property and reference to a label which in turn denotes the property being possessed. Here the situation might be easier for intra-compositional reference than in the case of expression, since metaphorical possession of a property is not needed. However, it is not clear under what musical circumstances one would regard one element as a label for a musical property which another element has. Perhaps Goodman offers a clue in his discussion of exemplification in modern dance which was quoted above.[26] Recall that a dance movement which has no antecedent denotation may take on the duties of a label denoting certain actions including itself. Similarly, perhaps in a musical composition a structural element may exemplify a musical quality which has no previous denotation so that the element becomes a label denoting itself. And perhaps the same element may then also function in the same capacity of a label denoting the musical quality again when it appears in a subsequent structural element so that a reference relationship is established between the two elements. Furthermore, it may be possible that the second structural element not only possesses the quality in question but also displays it thereby referring back to the original label.

The relationships established through the exemplification of a musical quality by a structural element in a composition, in which the quality is denoted by another structural element in the same composition, would be themselves structural features of the composition. Consequently, if the above discussion describes not only a musically possible situation but also one which actually occurs in compositions, then exemplification could account for at least part of what constitutes structural significance in music and, I suspect, in the other preceptual arts. However, just as in the case of expression, one needs to make a distinction between intra-compositional exemplification and exemplification by a structural element of a quality which is denoted by a label of another sort.

---

[26] See above, p. 73.

Elements in a work, whether structural or not, may exemplify any property they have. But when an element, structural or otherwise, does exemplify a quality which it has, it does so in addition to its having that quality, and its doing so is not dependent upon its having that quality in any particular way. Recall that "just which properties of a symbol are exemplified depends upon what particular system of symbolization is in effect."[27] Consequently, given Goodman's analysis of exemplification, one's awareness of the structural properties of a work is not dependent upon one's awareness of exemplificational

---

[27] Goodman, Languages of Art, p. 53.

XUM

properties, with the exception of those relationships which arise out of intra-compositional exemplification. However, one's awareness of the exemplificational properties of a structural element may be dependent upon a prior awareness of the properties the structural element has as a structural element.

A reconsideration of the example of the dance movement which exemplified itself is useful at this point. If someone to whom the movement appeared to lack coherent form or pattern were told, "Think of the movement as a label designating a class of movements of which it is one, and exemplifying itself," the person would be most likely just as much in the dark as before, if not totally mystified. The movement only becomes really significant as an exemplification of itself if it is first seen to have a certain pattern, or organization, or coherence as a dance movement, or if it has coherence in respect to other movement around it or movement that came before it or comes after it.

Limitations of a Denotative Model of Aesthetic Significance

The discussion of expression and exemplification indicates that these two forms of symbolization employed in the arts only account for the significance of a small portion of structural features in the perceptual arts when such features are considered apart from any reference relationships to objects or labels external to the work. Goodman actually suggests in Languages of Art that the modes of symbolization employed by the arts extend beyond the kinds which he has emphasized. In considering the pictorial scheme, he writes:

> Some characters of the scheme represent actual entities, some represent fictively, and some are not representational at all. Among those that are representational, as well as among those that are not, many are expressive; a character of the scheme may be representational or expressive or both or neither.[28]

Presumably, those characters that are neither representational or expressive are not all exemplificational, and presumably those characters that are none of these three modes still have to be read, but there are few clues in Goodman's work as to what reading such characters might involve. Goodman does acknowledge the existence of other kinds of reference aside from those which he emphasizes. In the midst of the discussion of exemplification he states, "By no means every case of reference is a case of denotation or exemplification. An element may come to serve as a symbol for an element related to it in almost any way."[29] And he goes on to mention briefly cause and effect relationships, and relationships where the symbol is just to the left of, or similar to, what it denotes, and finally, cases where reference runs along a chain of relationships. It seems, however, that these other kinds of reference are mentioned simply in order to further distinguish the kind of reference involved in exemplification. And, throughout the work, symbolic relationships are held to be relationships of the labeling sort.

---

[28] Ibid., pp. 232-233.

[29] Ibid., p. 65.

The concept of a labeling relationship essentially seems to be derived from a language model. Representation is to be understood first by assimilating it to description. We transfer our understanding of how labeling and description works in language to the pictorial realm. Similarly, Goodman has us first conceive of exemplification in respect to predicates. Later, the formulation is revised, exemplification being a relationship obtaining between a sample and a label, and we are reminded that pictures, gestures, etc., as well as predicates can be labels. But in spite of the concept's apparent linguistic origins, one can question whether the labeling relationship adequately captures symbolization as it is employed in language as well as in the arts. One feature of descriptive "labels" in language is that they can be said to carry meaning in terms of connotation as well as denotation. And connotative meaning may be a function of syntactic properties of phrases, sentences, and perhaps of even larger linguistic units as well as being a function of the constituent vocabularies of descriptions. However, the assimilation of descriptions to labels does not allow for a consideration of differences in the internal structures of descriptions, and it does not account for the symbolic efficacy such differences may have. If we are concerned with symbolic significance in the arts, then syntactic properties may be a source of significance along side the modes of symbolization that depend upon labeling. (And in respect to the connotative realm, syntactic properties may play a very important part in giving rise to the particular nuances of meaning that distinguish the originary representation from the one which excites our interest.)

Also, one should again question whether the linguistic model in general may obscure our understanding of the arts to the extent that the arts contain properties which are not analogous to modes of linguistic symbolization. So long as we are thinking in terms of labeling, when we are dealing with something like a dance movement which is obviously non-linguistic, we tend to constantly refer back to the language model where the reference relationships are more familiar, if not clearer. This is not to deny that the linguistic model is illuminating in certain respects. But it is to point out that often the shadow cast because of the particular placement or focus of a light is as large as the area illuminated by the light.

Goodman is aware of the limitations of his work in that he never claims that representation, expression, and exemplification encompass all of the symbolic forms found in works of art through which such works can be said to be cognitively significant. At the same time, Goodman suggests throughout his concluding chapter that works of art are cognitive through and through, and he seems to be implying that they are cognitive in virtue of their symbolic properties.[30] Thus he assimilates aesthetic significance to the significance of symbolization in general, of which he writes:

> Use of symbols beyond immediate need is for the sake of understanding, not practice; what compels is the urge to know, what delights is discovery, and communication is secondary to the apprehension and formulation of what is to be communicated. The primary purpose is cognition in and for itself; the practicality,

---

[30] This latter point, that works are cognitive in virtue of their symbolic properties, is especially important since Goodman assimilates all of perception to the cognitive realm. He seems to be saying that works of art are cognitive in the way that symbolisms are cognitive and not just because they involve perception.

XUM

> pleasure, compulsion, and communicative utility all depend upon this.[31]

And in discussing briefly "the question of merit," Goodman subsumes aesthetic under cognitive excellence, reminding us that:

> the cognitive, while contrasted with both the practical and the passive, does not exclude the sensory or the emotive, that what we know through art is felt in our bones and nerves and muscles as well as grasped by our minds, that all the sensitivity and responsiveness of the organism participates in the invention and interpretation of symbols.[32]

That Goodman should want to make statements having such vast implications about works of art pleases me highly. However, I am also left feeling somewhat puzzled, for I cannot help wondering about the symbolic status of the properties of works of art that cannot be assimilated to representation, expression, and/or exemplification. I suspect that while one or more of these modes of symbolization may figure importantly in many works, these same works may also contain much to hear or to see of aesthetic significance that is neither representational nor exemplificational, and that often exemplificational features (including the expressive) in a work cannot be noticed until one notices properties of another sort in the work. Furthermore, I suspect that some works of art may contain none of these modes of symbolization and still may be said to be replete with aesthetically significant properties. Of course, Goodman at times suggests that all this is possible, but I am puzzled that there is barely a hint in his entire work as to how it is possible. I am also puzzled that in explaining the dynamic nature of the aesthetic experience in terms of "reading a painting," Goodman speaks about the activities of "identifying symbol systems and characters within these systems and what these characters denote and exemplify" without the slightest suggestion of a point he makes earlier, that not all characters in all symbol systems denote and exemplify.[33]

---

[31] Goodman, Languages of Art, p. 258.

[32] *Ibid.*, p. 259.

One might still wonder what kind of features could be overlooked by someone who noticed all the exemplificational and representational features of a work. A consideration of some concrete examples of works of art may, therefore, prove to be helpful.

Many people claim to be sensitive to the expressiveness of the face of the Mona Lisa, but far fewer have any awareness of anything else about the painting, such as the way color is used or the way the space is organized.

---

[33] See above, p. 76.

XUM

What is interesting about this example is that many of the people who are apparently aware of the expressive qualities have never seen anything but reproductions of varying accuracy. (I am, of course, not referring to people who have never studied even a reproduction or a slide but merely know of the painting.) It seems that the expressiveness can come across in at least certain reproductions, and this seems to be true of other paintings as well. However, one must ask, "what more is there to see?" One would never argue that because expressiveness is preserved the reproductions are as good as the paintings. When they do appear to be adequate substitutes for the work then one has reason to question either one's ability to see or the painting's success as a work of art.

Consider what Goodman's notion of "reading a painting" comes to when one applies it to Titian's "Assumption of the Virgin." Certainly it must mean more than identifying a certain pictorial symbol as denoting the Virgin and other symbols as denoting other people and things, and finally becoming aware of all the labels that metaphorically and literally apply to the painting. Of course this is a gross oversimplification of the kinds of possibilities which Goodman's analysis revealed. (However, his analysis does at times suggest such oversimplifications.) Nevertheless, his analysis does not account for some of the first things that enthral one upon seeing the painting. Neither representation nor expressiveness can account, for example, for the fact that the painting glows as if it has a light source within itself, or for the fact that the red cloak of the Virgin is so vibrant that it is almost alive, or that the Virgin really does appear to be rising.

One should not be tempted to think of the vibrant redness of the cloak as a kind of pictorial label referring to itself and exemplifying itself. The cloak may indeed exemplify its own redness, but that fact is somehow irrelevant when one is seeing the redness of the cloak. And one should also realize that the fact that the Virgin in the painting is a symbol of the Virgin Mary being received into heaven does not account for the additional fact that she appears to be weightless and to be actually rising in space. Countless similar symbols of the Virgin Mary being received into heaven appear rather like a lump of lead suspended in space. Again, to say that the Virgin in the painting is not only a symbol but also exemplifies the property of being a Virgin who is received into heaven is perhaps to voice the obvious and is to detract from the primacy of what is seen in the painting apart from any labels that may apply to what is seen. Furthermore, the fact that the Virgin does appear to be rising is a result of the entire spatial organization of the painting, and is not necessarily a result of anything about the pictorial Virgin itself. When one thinks in terms of seeing the Virgin in the painting as an exemplification of a certain sort, one tends to overlook the countless visual properties of the painting that contribute to the effect.

Goodman stated that a painting might express something as a totality or a part of the painting might in itself be expressive. In the latter case one must consider what the non-expressive part contributes to the work, and in all cases one must consider whether the expressive parts of the work also function in some other way. While attention to the symbolic modes of representation, expression, and exemplification can lead a person to see something in a painting that was never seen before, such attention, if exclusive, can equally result in a kind of blindness in respect to works of art. The blindness would be in respect to the "purely visual" properties of painting and sculpture and the "purely auditory" properties of music. I use the terms "purely visual" and "purely auditory" not because I believe that there is a realm of vision or of hearing completely or even partially cut off from the other mental activities, but

XUM

in order to distinguish properties which can be meaningfully related to labels or related to objects as labels for them, or even to themselves as labels, from those properties of a work of art which are there simply to be seen or heard. This is not to suggest that the seeing or hearing of these properties is itself simple. Such properties, through the ways in which they are related to each other in the mind of the perceiver, create a visual or auditory object which can in itself be of great interest, perhaps because of its multi-dimensionality and its organizational complexity. It is this sort of visual object which Langer was referring to in talking about the virtual space of a painting.

The stipulation that not all labels are linguistic does not help to account for the seeing and hearing of the multi-dimensional visual and auditory properties to which Langer directed our attention. Many of these properties do indeed seem to depend upon a system of reference, but not upon the kinds of reference held to be primary in Goodman's discussion. I am not denying that the space created in a painting might lead us to see real space differently, or that the time created in a composition might lead us to experience personal time differently. But when our attention is directed to a Cézanne still life, for example, we cannot become aware of all of its visual properties in terms of a labeling mechanism. In fact, so long as we approach his work from that point of view we may miss the created volume and mass of his forms and see instead, as D. S. Macoll saw, "flattened jugs, apples, and napkins like blue tin that would clank if they fell."[34] Or, like many of Cézanne's contemporaries, we may be disturbed by the distortions of form which he employed both in depicting human figures and in the jars and bottles of his still lifes, and fail to see that the use of distortions "arose from his acute and fastidious sense of pictorial unity which constantly demanded these modifications as a very condition of the organic unity within the work."[35]

The inadequacies of Goodman's work are perhaps clearest to see in the case of music. The extent to which certain musical works employ representation, expression and exemplification is certainly minimal if not nil. To hear a group of notes as forming a musical pattern of a certain degree of complexity must surely involve something more than recognizing the group to be a label of a certain sort denoting itself. And the recognition of a complex pattern of notes to be a label of a certain sort often depends upon a prior recognition of its properties as a pattern. (This point was brought out above in the discussion of the relationship between exemplificational properties and structural properties of a work.) Furthermore if the recognition of the properties of a group of tones as a pattern depends upon a symbolic process, then the process must be of a different sort than those symbolic processes considered by Goodman.

---

[34] D. S. Macoll, Confessions of a Keeper, cited by Basil Taylor in Cézanne (London: Spring Books, 1961), pp. 61-62.

[35] D. S. Taylor, Cézanne, p. 15.

What is involved in hearing a group of notes as forming a musical pattern? The notes out of which the pattern arises must be heard as forming certain kinds of relationships with each other. There may be something like a system of reference at work, but the reference is implicit and it is internal in respect to the pattern. We have seen that the kinds of reference systems discussed by Goodman can function internal to a work of art. Nevertheless, they are inadequate to explain the case being considered. While a section of a painting might be said to express a quality which another seciton of the work labels, and while, in a similar manner, parts of a work of art may also be related to one-another via exemplification and representation, all such modes of reference depend on viewing the part that is a label as functioning on a different level than the part to which the label refers.

When tones are related to one another in forming a musical pattern, none of the tones comprising the pattern seem to shift levels. Furthermore, as was stated above, the relationships appear to be implicit. One does not usually first see lines as related to each other in a certain way and then see that in being so related to each other the lines are also forming a man-representation. Rather, in seeing the lines as related in a certain way one sees the representational properties. Similarly, in the hearing of tones as organized in a certain way, as related to each other in a certain way, one hears the musical pattern. This is generally the case even though the pattern is presented over a certain period of time. One does not first hear that the tones form certain sorts of relationships and then, in retrospect, hear the pattern; one hears a pattern unfolding in time.

At the same time, it is important to realize that hearing a musical pattern or seeing a visual pattern is not always something that happens automatically. Goodman's statement, that one must learn to read a painting as well as a poem, may apply to hearing patterns as well as to recognizing the kinds of symbolic properties which he distinguishes. Of course, most people who have grown

XUM

up in the Western tradition can "read" the simpler musical patterns of classical music, but it is not clear that they can hear the more complex elements of musical organization. Most Westerners also "read" from childhood the straightforward representational and three-dimensional space of traditional painting--although cubism was very hard to read at first--but whether the deeper levels of the spacial organization and the subtle color relationships, the volumes and the tensions, are seen is another question.[36]

Perhaps we have trouble learning to see or hear relationships which cannot be assimilated to labeling because we are a linguistically oriented society. While language can provide the clues of how to read representational and expressive characters in a symbol system, it seems to provide little help when we have to see things for which there are often no appropriate labels, not even visual labels. (When there are labels, the application of the labels is not apparent until the relationships being labeled are seen.)

---

[36] For an interesting discussion of recent experimental studies on the perception of representation in young children see Eleanor J. Gibson, Principles of Perceptual Learning and Development (New York: Appleton-Century-Crofts, Meredith Corporation, 1969), pp. 395-417.

XUM

The discussion of Goodman's work has led us back to the problem left to us by Langer, the problem of the significance of form in the perceptual arts. We are concerned with the need to specify the kind of significance involved in perceiving structural properties of works in music and in the visual arts. More specifically, we want to know if the relationships between the parts of a musical pattern or a visual pattern, in terms of which the pattern is perceived, can be said to constitute an implicit reference system. We can realize the importance of the problem by considering that for some works of art, this internal reference system may be the entire basis for the symbolic significance of the works. And, as the example of the Titian painting has indicated, many of the works which do employ modes of symbolization such as representation and expression seem also to depend to a certain extent on properties of a different sort. We are trying to explain the fact that we seem to be able to say that a person must sometimes learn to read a painting even though that person can correctly identify visual representations and correctly notice expressiveness. An adequate explanation might succeed in killing a number of birds with one stone. We could then accept a significant portion of Langer's work without resorting to her view that works of art serve primarily to symbolize human emotive life. And, at the same time, we could make sense of the claim rejected by Langer that "music is its own meaning." Furthermore, in respect to Goodman's work, we could make sense of his statement that "the characters of a pictorial [or musical] schema may be representational or expressive or both or neither" by explaining how characters which are neither representational nor expressive are symbolic in some other way.

CHAPTER III

MEANING AS INFORMATION

Information and Embodied Meaning

One of the most systematic programs put forward to account for the significance of structure in the arts in terms of an internal reference system is the attempt to explain "embodied meaning" in music by recourse to information theory. This attempt, were it successful, could account for many of the problems mentioned in the previous chapters which were left by Langer's and Goodman's work. But although I shall argue that the attempt is not successful, I believe that it needs to be seriously considered. While there have been previous applications of mathematical systems to musical structure, the information-theoretic approach is one of the first such applications which is oriented towards providing an explanation of the meaningfulness of musical structure to the listener.[1] Furthermore, while arguments have been put forward as to the inapplicability of probabilistic theories of meaning for language, relatively little attention has been given to the question of whether the same arguments hold for musical meaning. If one recalls some of the distinctions made by Langer between the properties of language as a symbolic system and those of music, and if one realizes that in applying information theory to music, one is dealing strictly with reference internal to a syntactic system, then there is reason to suspect that the problems are entirely different.

---

[1] I am borrowing the descriptive label, "the information-theoretic approach," from a paper by R. A. Sharpe entitled, "Music: the Information-Theoretic Approach," British Journal of Aesthetics, XI (1971), pp. 385-401.

We shall be dealing primarily with an account of meaning in music presented by Leonard Meyer in Music, the Arts, and Ideas.[2] Meyer's account is not the only attempt to explain the significance of the listener's experience of music in terms of information theory, but it is the most comprehensive attempt of this kind. And it is apparently the only attempt in which the primary emphasis is on the question of the applicability of the concept of "meaning" to what is heard in hearing structure in music.

---

[2] Leonard B. Meyer, Music, the Arts, and Ideas (Chicago: The University of Chicago Press, 1967).

XUM

Meyer distinguishes between two types of meaning which he refers to as "designative meaning" and "embodied meaning." Designative meaning is the meaning of ordinary language in that a word takes on meaning by referring to or designating something outside of or different from itself. Also, the symbolic characters of a dense scheme which are representational or expressive according to Goodman's analysis would be said to employ designative meaning. (There might be an exception to this in the case of a label referring to itself. However, to the extent that the label is functioning on a different level than that to which it refers, self-reference is also a case of designative meaning.) Embodied meaning occurs when something refers to or indicates something like itself in kind, as when one natural event indicates another.[3] Goodman does not seem to consider this kind of meaning as being important in the arts since he only deals with internal reference in works of art as modes of labeling. However, when one event indicates another it may not be appropriate to say that the first is functioning as a label for the second. Meyer states:

> Music gives rise to both types of meaning. Music may be meaningful because it refers to things outside itself, evoking associations

---

[3] *Ibid.*, p. 6.

> and connotations relative to the world of ideas, sentiments, and physical objects. . . . Or music may be meaningful in the sense that within the context of a particular musical style one tone or group of tones indicates--leads the practiced listener to expect--that another tone or group of tones will be forthcoming at some more or less specified point in the musical continuum.[4]

Meyer's primary concern is with the latter kind of meaning that arises within the context of the work itself. In the first three chapters of Music, the Arts, and Ideas, he tries to explain the way in which meaning arises out of the musical structure by correlating embodied meaning with the receival of "information" on the part of the listener. The term "information" is to be understood in the technical sense of information theory. Before tracing the correlation as Meyer sees it, we should, therefore, first review some of the concepts of information theory itself.

Information theory is concerned with the quantitative measure "of the flow in a network of an intangible attribute called information."[5] The measure of information which has been devised for this purpose is based solely upon a consideration of the syntactic properties

---

[4] Ibid., pp. 6-7.

[5] Jagjit Singh, Great Ideas in Information Theory, Language and Cybernatics (New York: Dover Publications, Inc., 1966), p. 9.

XUM

of messages. "'Information' in this context is merely a measure of one's freedom of choice when one selects a message from the available set, many of which may be devoid of meaning."[6] What is the meaning of "freedom of choice" in this context? Consider, for example, a system which has two possible signals in which the probability of selection of one signal is greater than that of the other. It would follow that because of the unequal probabilities of selection of the signals, the information contributed by the less probable signal would be greater than that contributed by the signal of greater probability. The less probable signal would have greater "news" value; which is to say that the easier the prediction or higher the probability of a given message, the less freedom of choice in the selection of the message, and consequently, the less information conveyed by the message.

The accepted rules that govern the combinations of symbols in a given symbol system affect the quantity of information carried by its messages; they introduce "redundancy" into the system. "Redundancy," it should be noted, is being used here in a special sense to refer to the fact that the rules of combination which govern

---

[6] _Ibid._, pp. 12-13.

XUM

the probabilities with which messages occur in a system lower the total "information content" of the system. The information content of a system is highest when all the messages of the system are equiprobable. However, redundancy is considered to be an important part of symbol systems in that it makes the system "intelligible in the midst of noise, that is, any distortion vitiating a message during its transmission."[7]

Meyer states that his attempt to relate information theory to musical meaning was the result of certain observations made about his earlier analysis of the musical experience in Meaning and Emotion in Music. He writes:

> In that analysis of musical experience many concepts were developed and suggestions made for which I subsequently found striking parallels--indeed equivalents--in information theory. Among these were the importance of uncertainty in musical communication, the probabilistic nature of musical style, and the operation in musical experience of what I have since learned to be the Markoff process. In particular, it would seem that the psycho-stylistic conditions which give rise to musical meaning, whether affective or intellectual, are the same as those which communicate information.[8]

We must, therefore, try to arrive at an understanding of what is meant by "the psycho-stylistic conditions" in respect to both meaning and information.

---

[7] Ibid., pp. 18-19.

[8] Meyer, p. 5.

According to Meyer, musical meaning is illuminated in the following way. He states that "style constitutes the universe of discourse within which musical meanings arise."[9] Musical styles are to be understood as the functional equivalents of what is referred to as the symbol system or language system in communications theory. "Once a musical style has become part of the habit responses of composers, performers, and practiced listeners it may be regarded as a complex system of probabilities."[10] Meyer takes the fact that rules of musical grammar "are almost invariably stated in terms of probability" as evidence for his claim that style may be regarded as an internalized probability system. However, in speaking of a style as a probability system, he seems to include more than just the frequencies with which kinds of musical relationships occur in the compositions of the style. The "norms of the style" include also "the various modes of mental behavior involved in the perception and understanding of the materials of the style."[11] One is dealing with the psychologically probable, and Meyer recognizes that what is psychologically probable is not necessarily a matter of frequency of occurrence. "Not all the probabilities embodied in a musical composition are determined by frequency. Some are based upon the nature of human mental processes--ways of thinking."[12]

---

[9] Ibid., p. 7.

[10] Ibid., p. 8.

[11] Ibid., p. 9.

These "internalized probability systems" result in a listener experiencing the various musical events of a composition in terms of their implications for one-another.[13] "Out of such internalized probability systems arise the expectations--the tendencies--upon which musical meaning is built."[14] According to Meyer, to understand meaning one must distinguish between latent expectations and expectations that are activated. Latent expectations, as we have seen, are a product of the internalization of the probability relations. However, only when the normal course of the fulfillment of our expectations is disturbed do we tend to become aware of the meanings implicit in those expectations. "In other words," writes Meyer, "such latent expectations are necessary conditions for the communication of musical information, while disturbances of these norms are the sufficient condition for musical communication."[15] Situations in which no disturbances occur are considered to be neutral in respect to meaning, since there is no awareness of the relationship involved or of the fact that there are other possibilities. "Musical meaning, then, arises when our expectant habit responses are delayed or blocked--when the normal course of stylistic-mental events is disturbed by some form of deviation."[16]

---

[12] Ibid., p. 19.

[13] Ibid., p. 8, see footnote.

[14] Ibid., p. 8.

Meyer distinguishes the following three types of deviation:

> (1) The normal, or probable, consequent event may be delayed. . . .
> (2) The antecedent situation may be ambiguous. That is, several equally probable consequents may be envisaged. . . .And
> (3) There may be neither delay nor ambiguity, but the consequent event may be unexpected--improbable in the particular context.[17]

He notices a similarity in the first two types of deviation in that they "arouse active expectation because of the necessity of envisaging alternative consequences--of estimating the probabilities of an uncertain situation."[18]

We should recall that "uncertainty" was one of the concepts for which Meyer found "striking parallels" in information theory. He quotes the following passage from Warren Weaver on the relation between uncertainty and information:

---

[15] *Ibid.*, p. 9.

[16] *Ibid.*, p. 10.

[17] *Ibid.*

[18] *Ibid.*

> Information is. . .a measure of one's freedom of choice in selecting a message. The greater this freedom of choice, and hence the greater the information, the greater is the uncertainty that the message actually is some particular one. Thus greater freedom of choice, greater uncertainty, greater information go hand in hand.[19]

According to Meyer, here lies an important basis for relating meaning to information.

> Here we see our first clear relationship between embodied meaning and information. Information is measured by the randomness of the choices possible in a given situation. If the situation is highly organized and the possible consequents in the pattern process have a high degree of probability, then information (or entropy) is low. If, however, the situation is characterized by a high degree of shuffledness so that the consequents are more or less equiprobable, then information is said to be high.
>
> Both meaning and information are thus related through probability to uncertainty.[20]

The relationship of meaning and information in the third case of deviation can be similarly drawn, according to Meyer. First of all, it should be noted that the

---

[19] "Recent Contributions to the Mathematical Theory of Communication," Etc: A Review of General Semantics, X (1953), p. 273, cited by Meyer, Ibid., p. 11.

[20] Meyer, p. 11.

XUM

arrival of a highly unexpected consequent would be an event high in information. Secondly, it is important to realize that since meaning depends upon the relationship between the antecedent and the consequent, and "since this relationship changes as the music unfolds, so does the meaning attributed to the antecedent event."[21] Consequently, in the third case of deviation we can distinguish between the meaning attributed to the antecedent before the consequent arrives and afterwards. When the unexpected or least probable consequent arrives we become aware of the antecedent as containing greater possibility than we previously thought, and the previously certain antecedent-consequent relationship is seen to have contained a hidden uncertainty.

The third respect in which Meyer saw a parallel between information and musical meaning was in the operation of a "Markoff process." The operation of the Markoff process in music seems to result from the fact that earlier musical events are involved in and influence the probability relationships of later events. According to Weaver, a Markoff process or Markoff chain is a "special case of a stochastic process in which the probabilities depend upon the previous events."[22] Since the influence of previous events upon later events causes the later events to increase in probability, Meyer states that "as a musical event (be it a phrase, a theme, or a whole work) unfolds and the probability of a particular conclusion increases, uncertainty, information, and meaning will necessarily decrease."[23] However, he also states that music "is able to combat the tendency toward the tedium of maximum certainty through the _designed uncertainty_ introduced by the composer."[24] That is to say, that as the systematic probability increases, composers tend to introduce deviations, delays, and ambiguities.

---

[21] *Ibid.*, p. 12.

> Finally, it should be observed that as probability increases so does the _apparent_ significance of 'minor' deviations. The more certain we are that a particular consequent will be forthcoming, the greater the effect of deviation.[25]

This conclusion is to be expected from a consideration of information theory. For if a particular consequent is quite certain and something else occurs, the event that does occur is said to have a very low probability and consequently it would be correspondingly high in information.

---

[22] Weaver, p. 267, cited by Meyer, pp. 14-15.

[23] Meyer, p. 15.

[24] _Ibid_.

[25] _Ibid_., pp. 15-16.

The concepts of redundancy and noise also have a place in Meyer's discussion of music. Redundancy, we should recall, is the portion of the message "not determined by the free choice of the sender, but rather by the accepted statistical rules governing the use of the symbols in question."[26] Within a given style certain combinations of patterns would be prohibited by the rules of the style whereas other combinations would be imposed upon a composer writing within that style. Redundancy in music serves the purpose of combating "noise." Meyer distinguishes between two kinds of noise, acoustical noise and cultural noise. Acoustical noise refers to distortion vitiating the message during its transmission. (It corresponds to the concept of noise discussed by Singh.) Cultural noise "refers to disparities which may exist between the habit responses required by the musical style and those which a given individual actually possesses."[27] A person who did not have "habit responses" appropriate to a given style would not be hearing the music in terms of its meaningful relationships. The

---

[26] Weaver, p. 269, cited by Meyer, p. 16.

[27] Meyer, p. 16.

XUM

music would sound like a kind of "nonsense" to the listener. Noise creates uncertainty, but the uncertainty of noise does not contribute to the meaningfulness of the work. Meyer, therefore, distinguishes between desirable and undesirable uncertainty.

> Desirable uncertainty is that which arises within and as a result of the structured probabilities of a style system in which a finite number of antecedents and consequents become mutually relevant through the habits, beliefs, and attitudes of a group of listeners. Undesirable uncertainty arises when the probabilities are not known, either because the listeners' habit responses are not relevant to the style (cultural noise), or because external interference (acoustical noise) obscures the structure of the situation being considered.[28]

In light of the analysis outlined above, Meyer concludes that he has been able to show his initial hypothesis to be correct. "The preceding discussion has shown that embodied meaning and information arise out of the same processes."[29] As stated above, the term "information," as applied to messages in a communications system, refers to an inverse function of the probability of occurrence of a given message within the system. By applying this concept to musical events, one could say that, within a given system of internalized probabilities, a musical event would carry the most information if that event was the least probable of the possible alternatives determined by the antecedent and rules of style governing the composition. However, the situation in which the least probable consequent arrived would be a situation in which the "normal course of stylistic-mental events is disturbed." Therefore, Meyer takes both information and meaning to be effects of the probabilities present in antecedent-consequent relationships.

---

[28] Ibid., p. 17.

[29] Ibid., p. 21.

Meyer insists, however, that there is a distinction to be made between the concepts of embodied meaning and information as applied to music. The difference apparently lies in the "psychological attitude taken toward the processes."[30]

> In the case of meaning, attention is for the most part directed toward the antecedent, though of course the consequent is, as we have seen, of vital importance. In the case of information the greater part of attention is concentrated on the consequent. To put the matter briefly, in meaning, the musical process is considered and evaluated from the viewpoint of antecedents; in information the same processes are examined and assessed from the viewpoint of consequents.[31]

It is not at all clear why Meyer thinks that it is important to distinguish meaning from information. In both cases it would seem that what is important is not antecedents nor consequents but rather the antecedent-consequent relationship. Granted that in respect to meaning Meyer talks about the prior expectation which a listener has or the uncertainty before the consequent event arrives. But supposedly the uncertainty or prior expectation is primarily important in that it makes the listener aware of the potential meaningfulness of the situation. The actual meaning would depend upon which consequent of the alternatives arrives, since the meaning is based upon the information the listener receives upon hearing the consequent. Of course, if all possible consequent events were equally probable, the meaning in the antecedent-consequent relationship would be the same no matter which consequent actually occurred. However, the arrival of a particular consequent in this case could result in a future relationship being more or less meaningful than it otherwise would have been. It seems to me that the distinction between meaning and information in the manner suggested by Meyer does not add anything to our understanding of the processes being considered.

---

[30] *Ibid.*

[31] *Ibid.*

More seriously, objections can be raised to Meyer's use of the term "meaning" in referring to the expectations. Thus, R. A. Sharpe points out the vast contrast between Meyer's use of "meaning" in respect to music and

XUM

and verbal meaning, in that musical meaning, according to Meyer, evolves and changes as the work unfolds; whereas "it is a condition of our understanding a language that its terms should be employed in a constant sense."[32] Furthermore, Sharpe states:

> Again we can distinguish in the meanings of common nouns and adjectives a sense and a reference, but it is not clear that this distinction can be drawn for most musical works. Music only carries a non-musical reference in fairly exceptional cases, at least as far as European music is concerned, and I do not think we can identify the sense of music with the expectations it creates without using 'sense' in a new way. For the pattern of expectations created by a word does not constitute the sense of that word.[33]

And he goes on to point out that there is also no correlate in language to Meyer's distinction between hypothetical, evident, and determinate meaning. That distinction, Sharpe concludes, "is so eccentric that I don't think his [Meyer's] findings can have any bearing on the question whether music has meaning in the sense in which the question would normally be construed."[34] While I think that Sharpe is correct in pointing out Meyer's unusual and perhaps highly questionable use of the term "meaning," one can still wonder whether Meyer's application

---

[32] Sharpe, pp. 386-87.

[33] Ibid., p. 387.

[34] Ibid.

XUM

of information theory to music might, nevertheless, provide an account of musical significance, where "significance" is not taken as an equivalent term for "meaning."

We have seen that for Meyer the concept of uncertainty is important as the connecting link between meaning and information. Before going on to the bigger issues which Meyer's work raises, it is important to examine Meyer's discussion of uncertainty in respect to information and meaning since that discussion, I shall argue, involves a mistaken understanding of information theory itself. The mistake centers around Weaver's statement that "greater freedom of choice, greater uncertainty, greater information go hand in hand." Meyer, we should recall, seems to think that the following statement captures the relationship between information and uncertainty or randomness intended by Weaver:

> Information is measured by the randomness of choices possible in a given situation. If a situation is highly organized and the possible consequents in the pattern process have a high degree of probability, then information (or entropy) is low. If, however, the situation is characterized by a high degree of shuffledness so that consequents are more or less equiprobable, then information is said to be high.[35]

An unorganized situation, according to this statement, would result in uncertainty on the part of the listener, and, therefore, would also be a meaningful situation. Meyer gives the following example of the role of uncertainty in respect to meaning. He states that:

---

[35] Meyer, p. 11.

> Uncertainty may reach heroic proportions, as it does just before the E minor theme in the development section of the first movement of Beethoven's Third Symphony (mm. 248-80). Here the destruction of the rhythmic organization, the weakening of melodic motion, and the arrival at harmonic impass create a musical situation bordering on chaos. And the tremendous impact of the new theme, when it arrives, is clearly a product of the uncertainty of the antecedent situation.[36]

In order to realize Meyer's mistake, we should begin by examining Weaver's statement of the relation between information and uncertainty in respect to a concrete example. Consider a simplified symbol system in which there are two possible signals or messages, say a dot and a dash, with unequal probabilities of selection. If the statistical properties governing the frequency of occurrence of the signals in the system make it more likely for say a dot to be selected than a dash, then the system is considered to be one in which there is less "freedom of choice" in the selection of messages than there would be in a system in which the two signals occurred with equal probability. One could also say that there is less "uncertainty" in this system than in the system made up of two signals of equal probability since there is more reason to expect the dot to be selected than the dash. The principle governing this simplified system is generalized to all systems in information theory. The information content of a system is maximum, regardless of the number of messages in the system, when all the messages are on a par in terms of their frequency of occurrence. And one could say that in a system in which all messages are on a par in terms of their probability of selection, there is greatest uncertainty that the message actually is some particular one. "As soon as one or more messages become more probable than any other, freedom of choice is restricted and the corresponding information measure (I) must naturally decrease."[37] (In a system of n messages each with its own distinct probability p_1, p_2, p_3,...p_n of selection, the information measure (I) of the system is

---

[36] *Ibid.*, pp. 10-11.

$$- (p_1 \log_2 p_1 + p_2 \log_2 p_2 + \ldots + p_n \log_2 p_n)$$

bits. Thus, if all messages are on a par, each probability p is $\frac{1}{n}$ so that the sum becomes - ($\frac{n}{n} \log_2 \frac{1}{n}$ or $\log_2 n$.)[38] Consequently, it seems that Weaver's statement is intended

---

[37] Singh, p. 17.

[38] *Ibid.*, pp. 15-17.

XUM

to be taken as referring to the relation between the information content of a system of messages and uncertainty.

In applying information theory to music, one must be careful to make a distinction between the information content of a system and the information content of a particular message within the system. We have seen how the concept of uncertainty is applied to the information measure of a system. Meyer, however, is interested in correlating information with uncertainty in respect to the information content of musical events in relation to each other in a particular composition within a particular style. In these situations, Weaver's statement is not necessarily applicable. (The information content of a message of probability p is simply $-\log_2 p$.)[39]

Meyer's attempt to correlate highly organized situations with low information and highly shuffled situations with high information results in a bundle of confusions which need to be untangled. First of all, one should notice that irrespective of whether the antecedent is highly organized or not it is simply not possible for "the possible consequents in the pattern process to have a high degree of probability." Only one of the possible consequents of any antecedent situation could have a high

---

[39] Ibid., p. 16.

XUM

degree of probability, and the other consequents would have to have a correspondingly low degree of probability. (If one consequent of two has the probability of 11/12, the other consequent must have the probability of 1/12.) Secondly, and more importantly, one should notice that the statement being considered is not consistent with Meyer's earlier description of how meaning arises. Meaning was to depend upon the listener becoming aware of the implications of a stimulus in a particular context. In the context of a musical composition, the stimulus would be a musical event. A listener who was experiencing a really shuffled event would indeed experience a high degree of uncertainty about the consequents likely to occur. However, such uncertainty would be the result of the fact that after hearing a highly disorganized event, a listener would not be likely to have any expectation whatsoever as to the possible consequents. There would be no particular set of possibilities which the highly shuffled event could be said to imply.

There is a distinction to be drawn between an event which is organized in such a way that it implies a large number of events with equal probability and an event for which all consequents are equally probable because no particular consequents are implied. It seems to me that the latter case would actually fall under the category of "undesirable uncertainty" since it would be similar to the situation in which the individual did not know the implications of a stimulus because his habit responses were not relevant to the style. Meyer cannot maintain the position that meaning results when a listener becomes aware of the implications which musical events have for one-another and at the same time maintain that a highly disorganized event could result in high information and consequently a high degree of meaning for the listener.

The first part of Meyer's statement relating highly organized situations to consequent events of low information is similarly incorrect. A highly organized situation could result in low information, but it could also result in high information depending upon the consequent that arrived. That is to say that if a highly probable consequent arrived the situation would be one of low information for the listener, whereas if a highly improbable consequent arrived the situation would be one of high information. But certainly, only if the antecedent is organized is it meaningful to talk about the implication which that situation has for certain consequents, and only then is it meaningful to talk about the listener's expectations that certain consequents would be forthcoming in the musical continuum.

It is important to be clear about the relationship between the information of a message and its probability of occurrence, for once this relationship is understood, one can see that a situation in which the least probable of two possible consequents arrived might be just as high in information as the situation in which a number of consequents were equally probable. The information content of a message is measured by convention as $-\log_2 p$ where p is the probability of occurrence of the message. If there are three possible consequent messages, each occurring with the probability of 1/3, then the information of each of the three messages would be 1.58 bits. But notice that if the situation was structured such that the probabilities of the messages were $M_1 = 1/2$, $M_2 = 1/3$, and $M_3 = 1/6$ then the information content of the messages would be $M_1 = 1$, $M_2 = 1.58$, and $M_3 = 2.58$. That is to say that the information content of the least probable consequent would be greatest, as expected, and it would be considerably greater in this case than that of any of the three equi-probable events in the first situation. One would have to have six equi-probable events in order for any one of them to yield as much information as M_3 in the example. Of course, as the number of possible consequent events increases, the information content of any particular consequent increases if all consequents are equi-probable. However, according to this application of information theory, the situation in which many consequents are equi-probable is not necessarily the optimum situation for information received and correspondingly for meaningfulness.[40] The situation which allows for only two or three possible consequents may be very meaningful if one of those consequents has a very low probability of occurrence and that consequent is the one that occurs.

The aim of the above criticism was not to destroy Meyer's theory, but rather it was to try to arrive at the best formulation of a possible relationship between embodied meaning and information consistent with the principles of information theory. While the criticism demonstrated that information and meaning were not related through uncertainty in the way that Meyer supposed, nevertheless, it did not demonstrate that information and embodied meaning were not at all related. Indeed, it suggested the lines along which a relationship might be drawn.

We should recall that meaning was to arise when our habit responses in listening to music were delayed, blocked, or disturbed in some way so that we become aware of the implications between musical events, these implications being specifiable in terms of the probabilities of the events occurring in relation to each other. Meaning and information can perhaps be related in the following way. When a practiced listener hears a musical event, the listener's habit responses would lead him to expect that a certain consequent would be forthcoming, that consequent being the most probable of the possible consequents. If the most probable consequent arrives, the habit responses of the listener go undisturbed and the event would have little meaning for the listener. From the point of view of information theory, the consequent would be a message low in information. However, if the least likely of the possible consequents arrives, it creates a situation both meaningful and high in information. Alternatively, if a musical situation is so structured as to allow a great many possible consequents, so that each has a low probability of occurrence, the listener's habit responses would be blocked since the listener would not know which of the alternatives to expect. Accordingly, the consequent that arrived would be relatively high in information and the situation would be considered meaningful. Of course, it is important to remember that we are dealing with the psychologically probable and

---

[40] I will continue to use the term "meaning" throughout the discussion that follows since that is the term Meyer uses. This is not to deny the weight of Sharpe's criticisms which should be kept in mind as the discussion proceeds.

XUM

improbable, so there is the possibility that what would be meaningful to one person could be meaningless to another. However, Meyer tends to think that there is a certain degree of constancy in "the ways in which the mind, operating within the context of culturally established norms, selects and organizes the stimuli that are presented to it."[41]

Redundancy and Embodied Meaning

The above discussion of the relationship between uncertainty and information and between uncertainty and meaning leads to an interesting paradox in the application of information theory to meaning. In general, Meyer was attempting to correlate high information with a high degree of meaningfulness and low information with a low degree of meaningfulness. However, the style--if the term "style" is appropriate for random music--with the highest information content would not necessarily yield compositions which were the most meaningful. In fact, its compositions might not be "meaningful" at all in Meyer's sense of the term.

---

[41] Meyer, p. 7. Meyer develops his view more completely as to the what remains constant in the perception of structure in music in Emotion and Meaning in Music (Chicago: University of Chicago Press, 1956).

Let us examine the reasons for this apparent paradox. Regarding a style as the equivalent of a symbol system, the style with the highest information content would be one in which there were no rules of combination governing the selection of messages. We have seen that the information measure of such a style would be $I = \log_2 n$ where n is the number of messages. Consequently, the greater the number of messages the higher the information content (I) for such a style. If there were no restrictions upon the frequency or duration of sounds which were to count as messages in the system, the information content of the system would be infinity. Yet one would perhaps have reason to classify sequences in such a system as noise. But even if one restricted the possible messages, for example as John Cage does in some random piano pieces, to the well tempered scale as available on staff paper and capable of performance on the piano, so that redundancy is not actually zero, there is reason to question the meaningfulness as opposed to the high information content of such music.[42] One should note that in systems in which all messages are on a par in respect to their probability of selection, and in which there are minimal restrictions on what is to be an allowable message, the information content of any particular consequent in any antecedent-consequent situation would be correspondingly high. If there are n messages in the system, every consequent would have the information content of $-\log \frac{1}{2n}$ since all messages in the system are equally likely at any point in the composition.

---

[42] Joel E. Cohen, "Information Theory and Music," Behavorial Science VII (April, 1962), p. 147.

Meaningfulness, in the sense developed by Meyer, seems to depend upon the fact that there are rules governing the probability of selection of messages within a style, which is to say that meaning depends not only upon information but also upon the built in redundancy of a style.[43] Cohen states that "redundancy provides a quantitative measure of order."[44] If there were no probability rules in a given style, then there would be no basis for expectation since there would be no implication between musical events. It seems, therefore, that only when information is based upon order can meaning arise out of the same process as information. The dependency of meaning on order is actually suggested by our intuitive understanding of the arts. "As in all art,

---

[43] Sharpe discusses the need for redundancy as well as information if a work is to have unity (pp. 396-397). However, he does not relate the need for redundancy to Meyer's criteria for meaningfulness.

[44] Cohen, p. 140.

XUM

the expressive power of music lies in its form. Form, taken in its widest sense and embracing all features and their interrelationships, is the only means music has of conveying meaning."[45] The notion of form suggests that there are principles of order which operate, however implicitly, in works of art. Where musical events appear to be totally unrelated to one-another, forming no patterns and having no form, we may be justified in describing them by saying that they appear to be meaningless.

Meyer is apparently not aware of the dependency of meaning upon order which is essential in his own formulation of the basis of embodied meaning in music. Consequently, he fails to deal with the question of the necessary balance between information and redundancy in music. Obviously, there are limits to the extent to which redundancy can contribute to meaning. "Minimal sculpture" is certainly orderly, but one might feel that it emphasizes order to the sacrifice of something else. A completely redundant piece would not be any more meaningful than one that is totally random, perhaps because it contributes no information whatsoever.

---

[45] George P. Springer, "Language and Music: Parallels and Divergencies," For Roman Jakobson (The Hague: Mouton and Company, 1956), p. 508.

XUM

Coons and Kraehenbuehl attempt to include the necessity of order in their own application of information theory to music.[46] (Hereafter they will be referred to as C and K.) They slightly alter the measure of information as an inverse function of probability to the "non-confirmation of a prediction."[47] The measure of information they employ takes into consideration the fact that a person might continuously alter the probability system upon which he bases his predictions of consequents in the course of listening to a composition. High information is correlated with high degree of randomness, but C and K recognize that randomness may not be musically rewarding.

> 'Making no sense' is an everyday expression of randomness. Information is a measure of randomness. As randomness increases, the overall information in a system increases. As a musical experience approaches randomness, its reward value decreases. From this standpoint a composition should be most effective if its

---

[46] The view being considered is presented in the following two articles: Edgar Coons and David Kraehenbuehl, "Information as a Measure of Structure in Music," Journal of Music Theory II (November, 1958), 127-61; and David Kraehenbuehl and Edgar Coons, "Information as a Measure of the Experience of Music," Journal of Aesthetics and Art Criticism XVII (June, 1959), 510-22. (My references to the two articles can be distinguished by the order in which the authors' names occur.)

[47] Kraehenbuehl and Coons, p. 571.

XUM

> overall randomness, i.e., its informedness, were low.[48]

The concept of "information reduction" is introduced to account for the necessity of order in music.

> If we accept the theory that learning is reinforced by reward, it would seem possible that the event in a pattern which most effectively disposed of randomness would be the best learned by reason of its being the most rewarding. In terms of information, this would say that the event in a pattern that creates the maximum information reduction is the most effectively impressed upon the listener.[49]

However, as was stated above, it seems that total order is as unrewarding as randomness. C and K recognize that there is an apparent paradox in the need for high information as opposed to the need for maximum information reduction.

> If a composition is to be effective, its pattern must be one that, first of all, attracts and holds the attention of the listener and, secondly, rewards the listener for his attention. It is evident that only something which is informative will attract the listener's attention. This means that the pattern must be as high-informed as possible. On the other hand, the listener is rewarded by confirmations of his predictions. He would become frustrated and ultimately inattentive if a composition consistently non-confirmed his predictions. This means that the pattern must be as low-informed as possible.[50]

---

[48] _Ibid_., p. 514.

[49] _Ibid_.

[50] Coons and Kraehenbuehl, p. 145.

The paradox is resolved because the composer can structure his composition so that throughout the work there is an alternation of high information followed by information reduction. The composer:

> arranges two events in succession to achieve a maximum information gain in order to capture the listener's attention and rewards him with a third event which achieves a maximum information reduction. He continues in somewhat this fashion on every level of structural organization throughout the course of a composition.[51]

"Articulateness," as a measure of communicative effectiveness, is achieved by introducing patterns exhibiting the largest information gains followed by the largest reduction of information.

While this account considers the necessity of order being introduced into a composition along with information, the account tends to overlook an important source of order in the rules of style as discussed by Meyer. In Meyer's account, a musical style was considered to be a probability system. To the extent to which the probabilities of event sequences of a certain sort were determined by the rules of the style, a degree of order was automatically introduced into compositions of that style. I have argued above that the fact that events of high information were to be preferred as consequent

---

[51] *Ibid.*, p. 148.

XUM

events was not to be taken as an indication that disorganization was to be preferred, since the consequent of lowest probability was, nevertheless, implied by the antecedent event. The problem with Meyer's analysis in this respect is that it fails to deal with the question of style differences in terms of the continuum from total randomness to total order. He fails to ask: "How much order must a style have in order for musical events to imply one-another so that musical meaning can arise out of the antecedent-consequent situations?" In the example of the development section of the first movement of Beethoven's Third Symphony, it is questionable whether the introduction of the new theme would be highly significant if that theme was actually completely unexpected in the sense of being totally unrelated to anything that came before. But we do not know how strong the relationship must be for something meaningful to be created as opposed to something chaotic.

The statement by C and K that information is a measure of randomness refers to the information content of a symbol system and not to the information of a particular message within that system. It is not particularly enlightening to say that if the least likely consequent occurs at a particular point in a composition then the situation is more random than if a likely consequent were

XUM

to occur at that same point in the composition. Insofar as there are rules determining which messages are allowable consequents at a particular point in the composition, the occurrence of any of the allowable consequents would be a kind of manifestation of the order of the composition.

It is not at all clear that the notion of information reduction is capable of resolving the paradox between the demands for information and the demands for order. The application of the concept rests on a somewhat dubious interpretation of a dubious aspect of learning theory. Consider the statement: "If we accept the theory that learning is reinforced by reward, it would seem possible that the event in a pattern which most effectively disposed of randomness would be the best-learned by reason of its being the most rewarding." Whether or not reward is the basis for learning is still an open question, but in any case one must be careful in making assumptions about the kind of reward most relevant to any particular learning situation. One should not assume that in hearing a musical composition it is always most rewarding to have one's predictions confirmed.

The claim that the optimum pattern in a musical composition is one in which there is first high information and then maximum information reduction needs to be supported by empirical evidence. It is equally conceivable that a highly predictable pattern which ended with a highly unpredictable event might be just as rewarding as the other way around. And it is also possible that a pattern which was high in information from first to last might be most rewarding. (Perhaps even totally random music is rewarding to certain listeners, although one might not want to say that it is correspondingly meaningful.) It seems to me that this question would have to be decided upon empirical grounds. However, I tend to think that if the concept of embodied meaning refers to anything in music, then it refers to the fact that musical events indicate one-another in forming patterns and in forming patterns of patterns within a composition. The fact that high information cannot always be correlated with a situation in which such inter-relationships exist between musical events suggest the need to reformulate the claim that information and meaning arise out of the same psycho-stylistic process, to somehow include the necessity of order in the relationship between meaning and information.

Semantic Information and Syntactic Information

In evaluating Meyer's claim that one can meaningfully talk about musical meaning in the manner suggested, it is important to realize that the concept of "informa-

XUM

tion" in information theory might differ significantly from the concept as it is ordinarily understood. We should indeed expect a difference simply on the basis of the fact that the theory does not consider semantic properties of "messages" relevant to the measure of information. We would ordinarily want to call a message any sequence of semantically intelligible sentences, whereas semantic intelligibility is not a criterion for a "message" in information theory.[52] It may be useful to consider an aspect of information theory applied to the English language in order to illuminate some of the differences in the way information theory construes certain concepts such as "information," "message," and "redundancy" as compared with our ordinary understanding of these notions.

Since, in the context of information theory, the semantic content of a message is ignored, we can consider each of the symbols constituting the English alphabet as a "message." If each of the symbols of the alphabet (including the space) were equally probable "the information content of the English alphabet as a communications system would be $\log_2 27$ or 4.76 bits of information per letter.[53] However, the letters are not equiprobable and our freedom of choice in the use of the alphabet is further restricted owing to the probabilistic influence of one letter spilling over onto its successors. The constraints on our freedom of choice owing to the probabilistic influences of the letters is referred to as the "redundancy" of the alphabet. "It is this redundancy which makes the language intelligible in the midst of noise, that is, any distortion vitiating a message during its transmission."[54] While we do not have a precise measure, it has been estimated that the English alphabet is about 58% redundant. This means that "only 42% of the letters we choose (in writing) are under our free choice, the remainder being controlled by the statistical constraints of the language.[55] An obvious example of the kind of constraint implied is that when we write a "q" the probability of the letter "u" following is almost certainty. Were the redundant portion of each message missing, it could be guessed because of the accepted statistical regularities underlying our use of the alphabet.

---

[52] Singh, p. 12.

---

[53] _Ibid_., p. 18.

[54] _Ibid_., pp. 18-19.

[55] _Ibid_., p. 20.

"Redundancy" in the above sense refers to the abundance of symbols per message, where a message is an allowable string of symbols in the system. Students taking notes at a lecture often take advantage of this redundancy in the alphabet, leaving out easily guessable letters in words. However, the English language can also be redundant in the sense that one may employ more words than needed to express an idea. This latter "semantic redundancy" is not enforced by statistical properties governing the use of the language. If it were so enforced, a teacher could not criticize a student for redundancy in an essay. It should be noted that semantic redundancy is not always a negative aspect of language use. Semantic redundancy has often been purposely employed to insure that the audience understands exactly what the user intends.

It seems, therefore, that both kinds of redundancy can contribute to the intelligibility of language, but they contribute in different ways and the differences are important. The redundancy referred to in information theory contributes to intelligibility in the sense that if messages employ more symbols than needed, then misperceiving some of the symbols in the message may not result in total loss of the message since the missing or doubtful symbols can often be guessed. Also, there is a greater likelihood that messages will be more readily distinguishable because of greater differences in the symbols forming individual messages. Consider, for example, a language consisting of two symbols, 1 and 0, with the possibility of the following messages: 111, 110, 101, 011, 100, 001, 010. An error in the perception or transmission of any one place in a message would go undetected since it would result in another allowable message in the language. In the English alphabet we can often detect errors in words, without resorting to considerations of possible meanings in the context, simply because there is only one correct word which is at all similar. When the situation is such that a misspelling of, for example, one or two letters leads to something that is not a message in the language, one can be sure that the sequence contains an error. When, also, there is only one allowable message close to the sequence containing the error, one knows immediately what the correct message should be. Consequently, the abundance of symbols not only helps us detect the existence of an error but also it can help locate the error and determine the correct message.

However, when we talk of intelligibility in reference to ordinary language we are often referring to something in addition to receiving the correct message, where "correct message" is simply the correct string of symbols. Generally, we expect the English language to be intelligible in the sense that we can correctly understand the message. Semantic redundancy can certainly be used to this end. Lecturers often try to express difficult ideas in more than one way and at great length in order to make sure that the message is understood. It is important to realize that "message" in this sense refers to more than just a string of symbols. And when one speaks of understanding a message in ordinary language one is implying that the message contains "information" in a different sense that that of information theory. Information theory disregards the fact that when one ordinarily speaks of communication by way of language one implies that the symbols being used have an interpretation. The difference between the two kind of information can be elucidated by the fact that it is possible for one to correctly receive a message (I) and consequently receive the information (I) in the sense of information theory, and yet not understand the message (II) so that one would want to say that the person did not receive the information (II) in the sense of semantic content.

If one is attempting to argue that there is a correlation between embodied musical meaning and information, it is important that one makes clear the nature of the information involved. There is certainly a correlation between meaning and information (II) in the semantic sense. For if one correctly understands the meaning of a message we can say that he has assimilated or understood or received the information contained in the message. However, the correlation between information in the syntactic sense of information theory and embodied meaning as explained by Meyer is by no means as obvious.

Although information theory was not originally intended to deal with the semantic content of messages, attempts have been made to extend the theory to encompass meaning or to redefine the concept of meaning so that it seems to fit the theory or to do both.[56] Whether or not such attempts can succeed might depend upon the possibility of there being a close correlation between semantic and syntactic properties of language and upon the possibility of applying a statistical analysis to the syntactic properties of language. Noam Chomsky argues against attempts to apply statistical analyses to the problem of characterizing the syntax of a natural language. Chomsky's argument is particularly relevant to the discussion of the relationship of information theory

---

[56] See D. M. Mackay, "The Place of 'Meaning' in the Theory of Information," Information Theory: Third London Symposium, ed. E. C. Cherry (New York: Academic Press, 1955), pp. 215-225.

XUM

to music, since Meyer, in a reconsideration of his earlier views, seems to accept that argument as being applicable also to music.

Chomsky considers probabilistic theories in respect to his attempt to determine the characteristics of the grammar of natural language, so as to be able to separate grammatical from ungrammatical sequences in natural language.[57] He first argues that the "notion 'grammatical' cannot be identified with 'meaningful' or 'significant' in any semantic sense." Then he goes on to argue that one cannot correlate "grammatical" with frequency of occurrence in the past linguistic experience of a speaker or with some other statistically based notion such as "high order of statistical approximation to English." The very unlikely sequence "I saw a fragile whale" is grammatical whereas the equally unlikely sequence "I saw a fragile of" is not.[58] It seems that for a correlation to succeed not only must highly probable sequences be correlated with grammatical sequences but also highly improbable sequences must be correlated with ungrammatical sequences. But a great many improbable sequences are grammatical even though they are a kind of nonsense.

---

[57] Noam Chomsky, Syntactic Structures, p. 13.

[58] Ibid., p. 16.

Chomsky states:

> Despite the undeniable interest and importance of semantic and statistical studies of language, they appear to have no direct relevance to the problem of determining or characterizing the set of grammatical utterances. I think that we are forced to conclude that grammar is autonomous and independent of meaning, and that probabilistic models give no particular insight into some of the basic problems of syntactic structure.[59]

In re-evaluating the information theoretic approach, Meyer suggests that Chomsky's statement may also apply to music.[60]

Chomsky's argument is not intended to imply that statistical studies reveal nothing at all about language. We have already seen how information theory can tell us something about the rules governing the combinations of letters in the English language, and Chomsky suggests that statistical studies may also tell us important things about language usage. However, it seems that the syntactic properties distinguished by information theory are not the properties referred to in speaking of the grammar of a language. And apparently it is the syntax in the sense of grammar which is related to the understanding of language, although the precise relationship is not clear. It is interesting to note that if Chomsky is correct about the inapplicability of statistical models for the characterization of grammar, and if he is also correct in claiming that "the notion of 'understanding a sentence' must be partially analyzed in grammatical terms," then attempts to apply information theory to meaning in natural language cannot be successful.

---

[59] _Ibid_., p. 17.

[60] Meyer, p. 262.

One must not be too quick to assume that arguments which may be relevant to natural language are also relevant to music. It may be important to consider some of the differences between language and music which were indicated by Suzanne Langer, such as the fact that there is nothing in music which corresponds to the vocabularly of language. There are certainly a great many surface differences between the syntax or structure of music and that of natural language, and there are no indications that the differences are only skin deep. Furthermore, granting that there is some sort of "embodied meaning" in music, there is evidence that the relationship between syntax and "embodied meaning" would be different from the relationship between syntax and meaning in natural language. In terms of Meyer's discussion, meaning was to arise precisely when a listener was made aware of the syntax of a composition. (Awareness of syntax is not sufficient for the "understanding" of a sequence in natural language.) Consequently, if one wants to argue that probabilistic theories are inapplicable to the problem of determining the syntax in music, and, therefore, are inapplicable to the problem of explaining the concept of "embodied meaning," one must base that argument on the consideration of the properties of music itself.

Evaluation of the Information-Theoretic Approach

The theory that embodied meaning is a correlate of information seems to rest on an implicit claim that information theory is not solely useful for dealing with efficiency problems in man-made communication systems such as the telephone and telegraph system, but that information theory can also be extended as a theory of at least one aspect of what constitutes communication for man. The above discussion in which we differentiated semantic from syntactic information and the brief review of Chomsky's argument indicated that information theory left the semantic information of ordinary language unexplained. We can, therefore, conclude that information theory is at most only a partial theory of communication.

There are two underlying assumptions to the extended application of information theory to musical communication. The first assumption is that syntactic information is a component of human understanding and/or perception along side semantic information. To the extent that an implicit understanding of syntax, including deep structure, is necessary for the comprehension of natural language, the first assumption appears to be warranted, at least so far as natural language is concerned. Furthermore, Langer's analysis of painting and music in terms of the creation of virtual space and time as structural properties of works of art indicates that the first assumption may also be warranted for at least some of the arts, although it would require further explication. The second assumption is that information theory provides an adequate explanation of what constitutes syntactic information for man as well as for the artificial systems for which the theory was devised. We have seen that the second assumption is probably not warranted for natural language--the "syntactic information" which is a component of human understanding in the use of natural language is not the "information" distinguished by information theory. We have yet to examine the validity of the second assumption for music.

In the process of evaluating the claim that information theory can be extended to account for an aspect of communication in music, we must be careful not to rest the plausibility of the claim on a confusion between the different kinds of information. Unfortunately Meyer is not particularly clear on this point. Consider Meyer's statement that "the psycho-stylistic conditions which give rise to musical meaning are the same as those which communicate information." Meyer does not seem to be aware of the ambiguity in the expression "communicate information." We do not know what are the psychological and stylistic conditions for the communication of musical information or any other kind of information unless we assume that information theory tells us what those conditions are. But to make this assumption is to beg the question of whether information theory is indeed applicable. Meyer's statement acquires some plausibility because Meyer fails to specify the kind of information implied. There is certainly no question about the correlation of meaning and semantic information in our ordinary use of the terms.

In order to determine whether or not information theory is applicable to music, it is necessary to consider two central claims involved in the application. The first claim pertains to the way in which music is heard. If music is to communicate syntactic information in the sense of information theory, then musical compositions must be heard in a certain way. We must be able to show that when skilled listeners perceive musical compositions they are not only aware of the structure of musical relationships within those compositions but that the manner of

XUM

their awareness of those structural elements is in keeping with the application of information theory. The second claim pertains to the nature of the symbol system and the messages within the system. In respect to music, we must consider whether we can take a style to be a probability system and musical events within compositions to be messages manifesting the probabilities specified by the style in accordance with the theory. The two claims are interrelated. If musical events are not messages of the sort required by the theory then they cannot be heard in the required manner. Similarly, if we do not hear in the required manner, then the description of messages, even if it appears to apply to musical events, cannot be relevant to the problem of communication in music.

First of all, in considering the question of how music is heard, we should realize that information theory, in its original formulation, was only concerned with the reception of messages from the point of view of determining the degree of accuracy with which messages were received, so that enough redundancy could be introduced into the coding systems to correct for error due to noise and other causes. Nevertheless, in the theory's application to music, it is not sufficient for the listener to be considered simply as a device which receives and registers signals, for then the theory could not account for musical meaning in any sense. Hearing a message, as opposed to registering sound waves, involves an act of discrimination. Not every grouping of tones constitutes a message in a composition, and the listener must be able to distinguish "messages" from "meaningless" combinations of signals. I shall argue that the theory cannot account for "hearing a message" as opposed to registering signals.

Secondly, the application of information theory has implications for the way in which we hear musical relationships. It is not sufficient that we are aware of some sort of musical implication and that we recognize that there is such a thing as musical surprise or delay. If this is all the theory is telling us then there is no need for the theory. The claim is that information theory provides us with a way of characterizing the "syntactic information content" of musical messages, and it explains how that "information" is communicated to listeners. Consequently, the theory requires that the listener's awareness of musical relationships is in some sense an awareness of expectant ways in which probabilities will be fulfilled and then of how they actually are fulfilled relative to the probability structure of the style which has become part of the habit responses of the listener. I shall argue that there is little reason to suppose that a listener's awareness of musical relationships occurs in the manner suggested by the theory.

First let us consider what is involved in hearing a musical message. A message is a significant unit in a language or symbol system. Single tones might sometimes be heard as significant units in a composition, but often they are perceived as connected to a larger unit such as a phrase. In hearing a phrase as a significant unit in a composition, we are not simply hearing a string of tones. We are hearing the tones as having taken on an organization in respect to each other, as forming a pattern, which is to say that we are hearing the tones as related to one-another. Can information theory account for hearing a phrase as a message? The theory would have to explain how certain strings of tones form significant units for the listener whereas others do not. One might attempt an explanation in terms of information theory by considering a message such as a phrase to be made up of more elementary messages which are the tones. Then perhaps one could explain "hearing the tones in terms of their implication for one-another" in the same way that Meyer explains structural interrelationships in general: that within the contect of the listener's inter-

XUM

nalized probability system certain antecedents and certain consequents become mutually relevant in the sense that given a certain antecedent tone the listener expects that certain consequent tones are more or less probable.

But one must ask to what extent the listener's expectations can explain the way in which he hears the tones. Hearing a musical pattern is surely not the same thing as entertaining expectations about the tones making up the pattern. And it does not make sense to me to say that the listener is aware of the interrelationships between tones because he has certain expectations in respect to the tones, or that his expectations are the cause of his hearing the tones as forming a pattern. It seems more likely that if the listener has certain expectations then he has learned to have them because of this prior awareness of the tonal relationships involved. Notice that certain arrangements of tones form patterns in certain contexts by taking on an organization even if they are heard only once, while other arrangements of tones seem to lack pattern no matter how often they are heard. A listener may be taught to expect certain arrangements of tones to occur in a given situation, but he may still want to claim that he does not hear the tones as mutually related in any particular way. One must distinguish between knowing that some musical event is likely

XUM

to be a consequent to another event and hearing the second event as actually related in some way to the first. It seems, therefore, that information theory cannot explain what is involved in hearing a musical message because it cannot explain how certain groupings of tones come to be heard as forming significant units within a certain musical context.

The argument stated above in respect to messages can be extended to the problem of characterizing our awareness of musical relationships in general. The question is whether the listener's awareness of musical relationships is an awareness of expectant ways in which probabilities will be fulfilled and then of how they actually are fulfilled relative to the probability structure of a style? The difficulty with the question is that it is not clear in what sense Meyer intends that we construe the notion of the listener's "awareness" of the probabilities involved. Does the listener actually "hear" a musical event as a manifestation of a probability, or even of an approximation of a probability? To what extent is our awareness of probabilities supposed to actually enter into what is heard? Probabilities are essentially mathematical in nature, so Meyer is apparently not claiming that we actually "hear" the probabilities themselves. But must the listener then have an underlying

XUM

knowledge of the probabilities involved in order to hear in the requisite manner? It is difficult to understand what "knowledge" might mean in this case. One would not want to say, for example, that one must know that the probability of the expected next event is 15/16. Perhaps, then, we should say that our expectancies are in rough accord with the probabilities. But we must still ask whether it makes sense to say that the listener's awareness of musical relationships is in any way dependent upon his expectancies being in rough accord with the probabilities of a style. It should be noted that if we do not hear in a manner in keeping with the theory and if we are, nevertheless, aware of organizational properties as significant in hearing music, then we must conclude that music has syntactic properties which contribute information to the listener, but that the information involved is of a different nature than that of information theory.

What is involved in hearing musical relationships? I have already argued that hearing a phrase involves hearing the tones of the phrase as mutually related, and I have argued that hearing the tones of the phrase as mutually related is not dependent upon the listener's expectations. The situation is, I believe, similar for complex events. A series of tones does not necessarily lead one to expect anything. (A series can consist of any finite number of sounds, even silences.) Only if one hears the series of tones in a certain way does the series give rise to expectancies. The series is heard as indicating that another series is likely to follow because it has taken on an organization of a certain sort which, in turn, leads one to expect that it is part of a larger organization which includes the expected or indicated series. Of course, the organization is one that exists in time. The organization of which the series of sounds is a part may extend either to the sounds preceding or to the sounds following or in both directions. However, it is important to realize that we do not hear the series as indicating certain consequents as a result of having certain expectations as to what will follow, nor is hearing the series as indicating a certain consequent the same thing as having expectations as to what will follow. One could have the appropriate expectations because one was told that a series has certain implications without "hearing" the series as actually related to or indicating the consequent. Hearing the tones as organized in a certain way may be the reason for our having certain expectations, but the reverse situation is very unlikely. At any rate, if we do have expectations whenever we hear musical relationships, we ought to know it. While hearing music might involve anticipation some of the time, it does not seem to involve it all the time, and yet it does seem to consistently involve awareness of musical relationships.[61]

An alternative position is to take information theory to be a theory of the underlying mental processes upon which the communication of syntactic information is based. If these processes were considered to be unconscious then we would not have to be concerned about whether or not we were aware of "hearing" in the required manner. The fact that we do hear certain groupings of tones as forming patterns while others do not does seem to require some sort of explanation in terms of the underlying processes in pattern perception. However, if information theory is to provide the explanation, it is functioning as an empirical hypothesis, and as such it needs to be tested. As far as I know, there is no empirical evidence that information theory can be taken as a description of underlying processes involved in the perception of patterns in either our auditory or visual perception.[62]

---

[61] One needs to make a distinction between hearing a consequent as likely or possible given the antecedent and having prior expectations as to which consequents are probable.

[62] This is not to deny that information theory has

XUM

Central to the application of information theory to music is the notion that musical compositions have certain structural properties which can be described as probability relations and which constitute a significant part of what is or should be heard in hearing music. It is important to realize that when we are referring to structural or syntactic properties in evaluating the application of information theory, we are not referring to the principles upon which the work was constructed or the properties of the notation in which the work was recorded. We are only referring to properties which in some sense can be heard or which make a difference in what is heard. Consequently, for Meyer to point out that books on harmony discuss compositions in terms of probabilities does not in itself constitute an argument in favor of the application.

One is left with the question of whether or not we hear in the manner suggested by the theory. It seems to me that we do not, and that there is no way to construe the notion of "the listener's awareness of expectant ways in which probabilities will be fulfilled. . ." in order

---

proven useful in the formulation of experiments in perception theory and in their interpretation. For an interesting discussion see Fred Attneave, Applications of Information Theory to Psychology: A Summary of Basic Concepts, Methods, and Results (New York: Holt, Rinehart, and Winston, 1959).

XUM

to make that notion accord with how we actually do hear music. (I am not denying that we do sometimes have expectancies and that unlikely but possible consequents or the delay of likely consequents can make musical passages more interesting.) When we consider the question of whether musical styles are symbol systems in accordance with the theory, we shall see that one reason why we cannot hear in the manner required is because "what" we are hearing does not have the kinds of properties which could be heard in that manner.

In trying to decide whether the "language" aspects of music fit the requirements of information theory, we must again be certain that we are dealing with music as it is heard. (Recall that in referring to the syntax of natural language, we could distinguish between syntactic properties which constituted the grammar of language and syntactic properties that information theory might describe. Only the former kinds of syntactic properties were relevant to the problem of "understanding" natural language.) A consideration of the properties of musical notation is irrelevant here because those properties could never determine how music is heard or what is involved in "understanding" music. We must examine whether a style can be a "language" or symbol system, and whether a composition can be a "message" made up of sub-messages in accordance with the theory.

It is useful again to refer briefly to information theory itself. The notion of a language or system in the theory refers to the set of possible messages available for transmission plus the rules of combination stated in terms of probabilities, if there are any. A message is "a selection from a set of possible messages formed by sequences of symbols of its own repertoire."[63] In the case of communication systems like the telephone or telegraph "the set of possible messages is the aggregate of sequences of words in, say, the English language. No doubt many of these sequences will be meaningless gibberish without any matter."[64]

There is no real correlate of a word in music so I suppose we should want to say that the set of messages is the aggregate of sequences of tones, including silence, in a particular style. We might want to add that many of these sequences will be devoid of musical meaning. This would mean that these sequences have no information value due to the redundancy of the style. There would be no proper correlate of "meaningless gibberish" in the kind of musical meaning being considered since that notion depends upon semantic meaning. A sequence which violated the rules of a particular style would be meaningless within that style, but such a sequence could not properly be said to be a message in the system. According to the theory, styles could be distinguished by the different sets of probability rules governing them. These rules would prohibit certain sequences of symbols in the same way that the rules governing the English alphabet prohibit a "z" from following a "q". The rules would also specify that following a sequence of a certain sort another sequence would be more or less probable.

---

[63] Singh, p. 12.

[64] _Ibid_.

In the previous references to information theory we have always assumed that the messages were built out of discretely identifiable elements. This may not be the case for music as it is heard. Singh writes:

> But messages like music and pictures may also be more than mere rows of distince letters or strings of discrete notes and spots. They are often a continuum of sounds and colors, each merging insensibly with its neighbor, not unlike the speaking voice with its continuous variations of pitch and energy, or the imperceptible shadings of red into violet or orange-yellow in a Renoir rainbow.[65]

However, information theory has long since tackled the problem of continuous channels, i.e., channels carrying non-discrete messages. The theory can adequately deal with the transmission of music over, for example, the radio. But the problem of characterizing what happens to music when it is received by the listener is not thereby solved. The listener is supposed to be aware of certain musical elements as indicating other musical elements with more or less specific probabilities. For music to be heard in this way, one must be able to talk about a composition as consisting of a series of messages related to each other in specific ways. However, when one is listening to music, it seems that the specification of messages is an impossible task. The problem is not that of continuous channels, but, rather, it has to do with the "organic" nature of a musical composition as it is heard.

---

[65] Ibid., p. 59.

I have argued that when we hear a series of tones as indicating to a listener that another series is likely to follow we are hearing the tones as organized in a certain way. The organization of which a series of tones is perceived to be a part is dependent upon the listener's memory, but it may include the entire composition. Consequently, musical relationships extend beyond a few tones being related to a few other tones, and musical relationships are more complex than is indicated by the notion of an antecedent event leading a listener to expect

XUM

that a certain consequent will arrive, or causing the listener to be aware of the possibilities of certain consequents in the musical continuum.

The problem is that the structural organization of a composition as heard is not the kind of organization which is amenable to being broken into perceptual units which are interrelated in such a way as to be able to yield information to a listener. The theory requires that one be aware of musical relationships as manifestations of a probability system. But how are we to select the antecedent-consequent units. If a series of four tones is heard as related to another four tones then the information yielded would be, say, x. If the four tones are perceived as part of a larger series of about fifty tones which in turn is heard as related in a certain way to another series of about fifty tones then the information yielded would be, say, Y. Whatever the grouping taken around the initial four tones being considered, the information yielded would be different. Granted that within a composition certain groupings of tones may be eliminated as not constituting a perceptual unit, nevertheless, when one attempts to deal with music in terms of "messages" which yield "information," one is lead to deal with an immensely complicated hierarchical structure of probabilities which would require of any listener extraordinary computational abilities.

The above description is probably a simplification of the situation. When one considers that music is heard as unfolding in time, the problem gets even more difficult. According to Meyer:

> The meaning of the antecedent depends upon its relationship to the consequent to which it refers. Since this relationship changes as the music unfolds, so does the meaning attributed to the antecedent event. Meaning, then, is not a static, invariant attribute of a stimulus, but an evolving discovery of attributes.[66]

If this is the case then the concept of a "message" gets lost in a Heraclitean flux, and any talk of probabilities must be meaningless from the point of view of what is being communicated to the listener.

The second difficulty with the "language" aspects of music concerns the nature of musical styles. The major questions involved are first whether there are rules governing the perceivable structure of compositions, and secondly whether these rules can be said to be a probability system in the sense required by information theory. It seems that any concept of a musical syntax depends upon there being some set of rules: one must be able to judge what elements are in keeping with the syntax and what elements constitute a violation or syntac-

---

[66] Meyer, p. 12.

XUM

tical mistake. I will, therefore, assume that there are rules of some sort and go on to the second question of whether we can make sense of the notion of a style as a probability system.

We should consider first what the notion of a probability system would ordinarily mean according to information theory. When we are dealing with the English alphabet as an elementary set of messages, we can talk about the rules governing the usage of the alphabet as probability rules. We can actually count the frequency of occurrence of letters, and we can estimate the probabilistic influence of individual letters over their neighbors. While we do not have adequate data concerning the diffusion of probabilistic influence to determine the exact probabilities involved, it still makes sense to talk about rules or regularities. Of course, for someone using the alphabet knowledge of probabilities may be inessential. People manage to spell correctly without out knowing the probability of, for example, an "e" following a "p".

The situation is somewhat different with music. One of the major differences stems from the fact that one is not simply dealing with what happens within the compositions of a given style; the fact that something occurs frequently does not insure that it is psychologi-

XUM

cally probable. Meyer states, "Not all the probabilities embodied in a musical composition are determined by frequency. Some are based upon the nature of human mental processes--ways of thinking."[67] It is difficult to know what is meant by "ways of thinking" and how these ways of thinking determine what is psychologically probable. Nevertheless, the important point is that we are in fact dealing with the psychologically probable, and we cannot assume that there is a direct relationship between what actually occurs in compositions and what one expects will occur. At the same time, what one expects will occur is likely to be influenced by one's familiarity with the compositions of a particular style. Consequently, what is psychologically probable is not fixed and indeed may be constantly subject to change.

The fact that each time we hear a particular composition we may have a different set of expectations has consequences for the information-theoretic approach which need to be considered. We should recall that meaning is dependent upon events of low probability occurring. However, as a person becomes familiar with a composition there is a sense in which the events become more and more expected. We may know from our experience with other compositions in the style that the events in this particular composition occur in unusual ways. Nevertheless, we may want to say that we know this particular composition so well that in hearing it we know exactly what events will occur when they do occur. The events which occur are apparently completely expected even though we know that they are unusual.

---

[67] Ibid., p. 19.

Does the composition become meaningless when it is known this well? Meyer takes up this question. He argues that in certain situations familiarity can in fact lead to increased information. His argument consists of five points which bear reviewing. 1) "Understanding music is not merely a matter of perceiving separate sounds. It involves relating sounds to one-another in such a way that they form patterns." One may have to become familiar with a work in order to fully comprehend its network of implications since this depends upon correctly hearing and remembering events. Furthermore, understanding certain more complicated events may depend upon the listener having understood simpler relationships in the composition. 2) Since the less well structured parts of a work tend to be forgotten or regularized in memory they often remain unexpected through a number of hearings. 3) "Prediction is significantly dependent upon the listener's learned habit responses, which are a product of his past musical experience. Hence each musical experience--whether of a work heard before or not--modifies, though perhaps only slightly, the internalized probability system (the habit responses) upon which prediction depends." 4) Differences in performances cause differences in the information content of compositions. 5) Due to culturally conditioned attitudes about music we tend to enter into the "reality" of the piece of music and become involved in its syntactic structure even though it has been heard before.[68]

Finally, Meyer asks the obvious question:

> Suppose that a listener knows a work thoroughly, remembering the unexpected and the improbable as accurately as the expected and probable; suppose too that the listener's musical experience is so extensive that the modifications of his internalized probability system wrought by new experiences are so small as to be inconsequential; assume further that the work in questions is recorded so that the performer's deviations have been learned and are predictable, and that the power of the particular performance has been attenuated by repeated listening. (And such a situation is not impossible.) Under these circumstances will the listener find rehearing the work a rewarding experience?[69]

Meyer answers by saying that composers, performers, and listeners do in fact tend to tire of music with which they have become very familiar.

---

[68] *Ibid.*, pp. 46-48.

[69] *Ibid.*, p. 49.

The answer is certainly as obvious as the question, but the answer does not necessarily indicate what Meyer supposes it indicates. The fact that people tend to tire of music with which they have become very familiar does not necessarily support the theory in question. The theory implies that after one knows a piece in the sense of having all the right expectations, the piece ceases to be syntactically meaningful or interesting. When a person reaches the point that all the musical relationships within the composition appear to be absolutely certain in terms of the listener's expectations--so that the initial expectations caused by the antecedents are fulfilled by the consequents--then there is no point to listening any more since listening could not yield any information. The question to consider is whether it is possible to be that familiar with a composition and still find it syntactically interesting.

Certainly, many people who seriously listen to music become that familiar with at least some parts of the compositions to which they listen. And composers and musicians, I would think, become that familiar with many compositions. Of course we might want to distinguish between someone who understands a composition and someone who has memorized the composition and yet does not hear all the relationships. (However, if hearing a relationship is a matter of hearing an antecedent and having a certain sort of expectation in respect to a consequent, then it is difficult to know what is the basis for this distinction.) But even if we accept this distinction, it still makes sense to talk about someone who actually knows a composition in the sense of hearing all the relationships and who knows what consequents are going to arrive at each point in the composition. In respect to such a person it is first of all not clear that he would necessarily find listening to the composition tiresome, and secondly, if he found the composition tiresome, I doubt if the reason would be that he was not receiving "information" any more, in the sense of information theory. Indeed, it seems reasonable to assume that people strive to understand compositions that well, not so that they can make predictions and have the assurance that they are correct, as Coons and Kraehenbuehl suggest, and not so that they can immediately stop listening, as Meyer seems to suggest, but rather so that they can listen and hear everything that is happening. The point of listening, it seems to me, is to "hear" the music, and hearing the music seems to be an independent act from making predictions and having expectations.

I would certainly not argue that compositions are or ought to be eternally interesting to listeners. But the fact that people tire of compositions may have nothing to do with the fact that they are not receiving "information" in the sense of information theory. (It may have to do with the fact that the listeners "know" all the "information" contained in the piece, where "information" refers to other kinds of structural properties aside from probabilities.) Listeners may tire of a composition in the way that they tire of other experiences. It is perfectly reasonable to assume that after having a certain sort of auditory experience a number of times one might tire of it, or one might simply want to have a different sort of auditory experience. Also, people do tend to outgrow certain kinds of music, perhaps because they become capable of understanding more complex relationships than the music presents, or perhaps because they come to see that the music is not as good as they once thought. But this is not the same as tiring of music because one's predictions are confirmed.

When one considers that in dealing with a style as a probability system one is referring to the psychological attitudes of the listener, the notion of a style becomes increasingly elusive. When one further considers that the "messages" of the system cannot be specified because of the ways in which the perceptual units are embedded in one-another and because of the complexity

XUM

of their interrelations within compositions, then the point of assigning probabilities to musical events becomes lost. The listener supposedly hears a musical event as having certain implications for what will follow because he has learned that in this particular style a configuration of one sort tends to be followed by a configuration of another sort, and because of his "ways of thinking." According to the theory, the listener would have no reason to expect that one event would lead to another unless he had internalized the relevant probability system. (Recall that "cultural noise" occurred when the listener's habit responses were not relevant to the style, his expectations were not appropriate.) But unless the listener listened to particular compositions in which he actually heard antecedent events as related to subsequent events he would have no basis for learning what was probable and what was not. The process is rather circular. To put the difficulty in other words, knowing a style, in the sense of internalizing a probability system, is a precondition for receiving the information or understanding the syntactic relations within a composition. However, a style is constituted by the compositions within it, and it does not make sense to talk about learning a particular probability system independently from hearing the individual compositions of the style; and hearing the individual compositions within a style involves hearing the particular sorts of musical relationships which are being presented to the listener within the compositions. The situation is further complicated when we realize that in considering a style to be a probability system, we are apparently dealing with what is psychologically probable for the listener. But what is psychologically probable for the listener is subject to constant change, and that is to say that it is not a system at all. One cannot have a system of probabilities in the sense of information theory and allow that the probabilities both determine and are determined by what we hear.

Concluding Remarks

The arguments presented are, I think, conclusive in demonstrating that information theory cannot account for "embodied meaning" in music, for information theory cannot provide us with an explanation of what constitutes syntactic information in music or how that information is communicated. Music is not heard in the manner indicated by the theory, and a style cannot be a probability system nor can musical events within compositions be "messages" in accordance with the theory. Aside from these conclusions as to the inapplicability of information theory to the problem of significance in music, it is also possible to draw some general conclusions from the arguments presented about all attempts to explain musical meaning by means of probabilistic theories.

We have seen that the meaningful cannot be properly correlated with the highly improbable and that it also cannot be properly correlated with the highly probable. Furthermore, the attempted compromise offered by Coons and Kraehenbuehl had the appearance of a contrivance. All probabilistic theories of meaning have to deal with the question of how the listener attends to music and what he hears in so attending. Meyer is correct in stating that it is not sufficient to point out that certain events occur frequently, for what one counts as an event is also highly problematic.

> For example, does it make any sense to count all the A's (440 cps) lasting a quarter note in Mozart's music? Clearly not. For the syntactical significance of a tone depends upon its context in a particular work and even in the part of the work. An 'A' can be tonic, a dominant, a leading tone, an enharmonic tone, and so on. And the same observation will be true for harmonies, first-order transitions, and even higher-level musical events.[70]

Meyer, however, does not think that the problem is insoluble. Instead he concludes that one can get around this problem by considering inductive probabilities along with statistical probabilities.[71]

---

[70] *Ibid.*, p. 261.

It seems to me that the fact that one has to consider what is probable for the listener does not solve the problem but rather makes the problem forever insoluble. I have argued that listeners may be aware of significant relationships in music without perceiving the events involved in terms of any awareness of their probabilities of occurrence. Furthermore, I have argued that even if the listeners have expectations about consequents in terms of their probabilities of occurrence, such probabilities may have nothing to do with the significance of the events for the listeners. And finally, I have argued that any attempt to treat the subjective probabilities in a systematic manner is bound to failure because such probabilities are constantly subject to change. I cannot conceive of any way in which to correlate meaningfulness with probability of occurrence of an event for a listener which overcomes these difficulties. And I agree with Meyer that a consideration of statistical probabilities alone cannot provide us with any clue of what is the basis for significance in music. For if one just counted the occurrence of tones, one would be ignoring the fact that the significance of a tone depends upon its context. But if one attempted to count patterns, one would require a prior notion of what is "meaningful" as a pattern aside from any notion of "meaningfulness" based on probabilities.

---

[71] Ibid.

We must conclude that neither information theory nor any other probabilistic theory can account for meaning in music by providing us with a notion of an internal reference system. However, it is important to realize that if one rejects the notion of a probabilistic theory of syntactic significance in music, it does not follow that one must also reject the notion of syntactic significance or information of some other kind. Similarly, if one finds that one cannot conceive of the listener's awareness of musical relationships in terms of his expectations that certain events will be forthcoming, one should not conclude that the notion of a listener's awareness of musical relationships also must be rejected. If we can distinguish between hearing a string of notes and hearing the notes as forming a pattern, then we can talk meaningfully about "hearing structure" in music. (Meyer's own criticism of non-inductive statistical analyses of musical compositions indicated that such a distinction was essential for the understanding of music.)[72] In the second instance the notes take on an organization which is part of what is heard in hearing the pattern.

---

[72] Ibid.

CHAPTER IV

COGNITION AND THE PERCEPTION OF STRUCTURE IN ART

Summary

In the preceding chapters, I have presented three different kinds of explanations of the symbolic in art in respect to the aesthetic theories of Langer, Goodman, and Meyer. Each of these theories attributes to works of art a cognitive function in virtue of the symbolism in art. At the same time, each theory rejects the position, whether explicitly or implicitly, that if art is to have a cognitive function then works of art must somehow contain or imply statements about reality. Also, each theory explicitly or implicitly rejects the assumption that the cognitive is essentially linguistic whereas experience, including aesthetic experience, is pre-linguistic and hence pre-cognitive.

The focus of the discussions and criticisms of Langer's, Goodman's, and Meyer's theories has been narrower than the question of what is symbolic in perceptual art or the extent of the cognitive function of the perceptual arts. We have been concerned with arriving at an understanding of why certain perceptual features of musical and visual works are found to be interesting and aesthetically significant in themselves. And we have sought this understanding by examining whether any or all of the three theories considered could provide any insight into the problem in terms of an account of the symbolic significance of form or structure in the perceptual arts. (In my discussion, I have assumed throughout that we cannot explain our interest in--or the significance of--the perceptual features of works on the basis of the pleasure derived from the perception of those features.) If the structure of a work can be said to be symbolic in its entirety, or if structural elements in a work are symbolic, then it would be reasonable to explain their aesthetic significance in terms of their cognitive import as symbolisms. Furthermore, the fact that certain perceptual features of works are found to be interesting in themselves could be explained by the cognition afforded through our perception of those features.

However, the discussion of Langer's theory indicated that an account of the perceptually interesting features of a work in terms of the symbolic properties of those features is a rather more complicated undertaking than one might first imagine. Apparently, one must not only

XUM

show that perceptual features function as symbols in that they have a reference relationship to something which can be said to be the import of the symbol, but also one must establish the symbolic relationship in such a way that it accounts for the symbol itself being the focus of our interest. In Langer's terms, the import must be bound to the symbol, for only in that case could the fact that a feature is symbolic (or that the structure in its entirety is a prime symbol) account for our interest in and the significance of the perceptual nature of the feature itself. I have argued that Langer fails to establish the requisite conditions under which the import of a symbol can be said to be bound to the symbol, and she fails to establish that the significance of form in works of art lies in the fact that the form is a symbol of sentience.

Goodman is not directly concerned with the question of how the perceptual features of works of art can be said to carry symbolic significance without directing our attention away from the features themselves. Nevertheless, the discussion in Chapter II of Goodman's account of some of the ways in which works of art in general are symbolic provides certain insights into our problem. First of all, one should recall that the emphasis of Goodman's analysis of symbolic relationships is on denotational and exemplificational symbolisms. In the light of some of the difficulties in Langer's analysis, it is interesting that Goodman, inadvertently, is able to provide an account of a denotational symbolic relationship in which the import is in some sense bound to the symbol. Thus Goodman's account of representation as a form of classification or labeling allows that the label may participate in making the very object that it labels. In so far as we need to be seeing a representation to be able to see what it is a representation of, the import of the symbol may be said to be bound to the symbol; and if the reclassification is a significant one, we are likely to find ourselves interested in the representational features, i.e., the perceptual features comprising the representation, themselves.

Goodman's analysis of representation as a symbolic mode may also lead us to question Langer's insistence that we make a distinction between the aesthetically significant use of representational elements to delineate the space of a work, and thereby contribute to form, and the non-aesthetic use of representational elements to refer to objects outside of the work. The artist who is creating a multidimensional spatial world in his painting may be at the same time creating a significantly new way of reorganizing perceptual space in the real world.

XUM

It is not clear what the grounds would be for attributing aesthetic significance to the one creation and not to the other.

Goodman's analysis of the symbolic relationship involved in exemplification and expression also may add to our understanding of the significance of the perceptual features of a work. In particular, we have seen that it may be possible to apply Goodman's analysis of exemplification and expression to relationships between structural elements within a musical composition or visual work.[1] Insofar as such relationships can be said to be symbolic, as manifestations of expression and exemplification, one can explain at least part of the symbolic significance of structure in a manner which accounts for the perceptual interest afforded us by structural elements in works.

In terms of Goodman's discussion in Languages of Art, intra-compositional exemplification and expression would be a special case of exemplification and expression as it usually occurs. Structural features of a work may be symbolic in that they exemplify or express some quality which they have but for which the label is external to the work. I have argued, in respect to this probably more usual situation, that the exemplificational symbolic significance of the structural features cannot fully account for what is perceptually interesting about those features. However, one should not conclude that only intra-compositional exemplification and expression are to be considered aesthetically significant. Instead, I have suggested that in providing for an explanation of how features in a work can function in more than one symbol system, Goodman's discussion allows for a richness of "meaning" to be created.

---

[1] In Chapter II, I focused primarily on intra-compositional expression in respect to musical compositions. Virgil C. Aldrich develops a similar notion of intra-compositional expression in respect to paintings. However, I think that he restricts his notion too much in assuming that intra-compositional expression can only occur in representational works. See "Form in the Visual Arts," British Journal of Aesthetics, XI (1971), pp. 215-226.

Goodman's explorations of the symbolic in works of art point out the shortsightedness of Langer's insistence that a work of art can only be significant as a prime symbol, and, more importantly, they suggest some ways in which structural elements can be said to refer to one-another and carry an import that is internal to the work of art. Nevertheless, his concentration on denotational and exemplificational symbolism leaves much of the significance of structure for the perceiver unexplained. And yet Goodman suggests that an explanation in terms of symbolism should be possible. Thus, in Chapter III, the

XUM

information-theoretic approach was considered as another possible solution to our problem.

Meyer starts with the assumption that one of the aspects of musical works that is most in need of an explanation in terms of its aesthetic significance is that of the relationships between perceptual units within a composition which can be said to constitute the organization or structure of the composition. This is not to say that the organization is something that is heard apart from the tones or larger units that are organized. But it is to recognize that it makes sense to talk about ones understanding of a musical composition as a function of the organizational complexity that one hears.

I have suggested that Meyer's attempt to correlate meaning with expectancies as to musical consequents within a given composition rests upon a use of the term "meaning" which is most unusual if not confused. However, even if we should want to reserve the term "meaning" for clear cases in which there is semantic import, I argued in Chapter I that one should not conclude that structural features lacking semantic import necessarily lack cognitive import. The information-theoretic approach to music, were it successful, could account for the kind of import which is attached to the work insofar as the work is perceptually interesting. A musical work could be said to have features which have various kinds of semantic significance, such as the significance of representation, exemplification, ~~and~~ expression; and it could be said to have features which have syntactic significance. And many features of a work could be said to have both syntactic and semantic significance. Indeed, in certain cases one might say that the structural features give rise to the semantic import of the work, since one needs to hear a passage as organized in a certain way in order to hear how that passage, in virtue of its particular pattern, has properties which it expresses or exemplifies. However, in Meyer's account, structural features which do not give rise to semantic import could be said to give rise to information in the sense of information theory, and, consequently, could be said to be cognitively significant.

I have argued that information theory cannot provide the account of structural significance in music intended by Meyer. Many of the difficulties with the information-theoretic approach discussed in Chapter III would also apply to the use of the theory to explain structural significance in the visual arts. (This is not to deny the usefulness of information theory as applied to question of how we perceive as explored by psychologists. But theories of how we perceive do not necessarily account

XUM

for the significance in what we perceive.) One must, therefore, conclude that the problem with which we started remains unsolved, at least in respect to the aesthetic theories considered.

Various Senses of "Cognitive"

In the literature on perception in psychology as well as in philosophy, the suggestion has been made that in order to understand the nature of perception one must break down the distinction between perception and cognition. Also many recent theories of perception in psychology depend upon the assumption that the experience-knowledge dichotomy is no longer tenable. Some theories maintain the dichotomy by claiming that one needs to distinguish between sensations and perceptions. Perceptions are thought to be cognitive, but sensations are the "raw experience" out of which our cognitions are formed. However, it is becoming increasingly unclear under what conditions we can say that we are experiencing our sensations and what it is that we are actually experiencing.[2]

---

[2] A collection of papers from diverse theoretical viewpoints, many of which have implications for the question of the relation of perception to cognition, can be found in Ralph Haber, ed., Contemporary Theory and Research in Visual Perception (New York: Holt, Rinehart and Winston, Inc., 1968.) Also, for a comprehensive review of theories of perceptual learning and perceptual development see Gibson, Principles of Perceptual Learning and Development.

The claim that perception is cognitive may be construed in a number of different ways. It is important to distinguish two interpretations of the claim in order to clarify the intent in claiming that art is cognitive. 1) Perception may said to be a form of cognition, i.e., an intellectual process through which one knows directly about the world. Put in another way, perception may function to give man information about the world, which information does not require translation into verbal or any other form in order to constitute a portion of our body of knowledge. Consequently, what we perceive is a part of the body of what we know even in cases where we cannot say what we perceive. 2) In claiming that perception is cognitive one may be referring to the fact that one employs what one already knows about the world in perceiving the world. As the normal human being develops from infancy to childhood and through childhood to adolescence, his abilities to perceive increase in terms of the numbers and kinds of discriminations that can be made and the accuracy in making them, and this development in discrimination is at all times dependent upon the total body of knowledge he already has acquired. This latter claim carries with it the assumption that one cannot separate out that which is given in one's perceptions from the knowledge which allowed one to perceive in that particular way.

In claiming that art is cognitive one apparently does not simply mean that the ability to perceive relevant features in works of art is dependent upon or involves one's knowledge, even though this is most obviously true. The claim that art is cognitive also is not generally construed as a roundabout way of saying that in perceiving works of art one acquires knowledge of the objects one is perceiving in the same way that the perception of other objects in the world yields knowledge of those objects. Indeed, if this is all that were meant, one should similarly say that all the objects of our perception are cognitive, and yet this is a peculiar way of speaking about the non-art objects of our perception. When Goodman claims that one must learn to read a painting as well as a poem he is not referring to the fact that discriminating perception in general must be learned. Instead, he notices in the activity of perceiving a work of art the need to be able to discriminate symbols. Supposedly, one has to learn to read a painting as well as a poem because a painting as well as a poem is comprised of symbols functioning in one or more symbol systems.

Should one then say that art is cognitive in the way that symbolisms are cognitive? The answer would

XUM

surely depend upon what is meant by "the way (or ways) that symbolisms are cognitive," as well as what one is willing to consider to be a "symbolism." It seems to me that if we are going to understand the perceptual arts as essentially symbolic, as Langer, Goodman, and Meyer suggest we should, we must broaden our understanding of symbolic significance and allow it to extend beyond the semantic, and we must also broaden our conception of the symbolic relationship beyond that of denotation.

One needs to reconsider why it is so appealing to explain the aesthetic significance of structure in terms of its symbolic character. One reason is that we seem to lack some other way of explaining what goes on when we see or hear a work in such a way that we are clearly attending to structural elements, and we seem to lack some other way of attributing to structural elements of works the significance which they are due. However, an explanation in terms of symbolism is problematic, as we have seen, precisely because it seems to require a symbolism that has semantic as well as syntactic properties. Are we then also guilty of being carried away with the apparent similarities between language and the perceptual arts in noticing that the arts being considered have structural properties which can be compared to the syntax of language and in assuming that the arts have a

XUM

cognitive function in virtue of these structural properties? This is the kind of poor thinking that Langer is accused of by Nagel in his review of *Philosophy in a New Key*. Nagel states:

> Mrs. Langer is here simply acknowledging that discursive language can be exploited in a purely formal or syntactical manner. But she does not seem to note that when language is treated in this way--i.e., in abstraction from any *reference* it may have--language is not *operating symbolically* at all. If, however, the development of a musical theme is a sort of syntactical operation, with musical forms, how does music suddenly become representative and expository of the dynamics of emotional life?[3]

And Nagel concludes:

> The desire of so many lovers of the arts to exhibit the latter as possessing an important cognitive core is symptomatic of the supreme, though perhaps unwitting, value they placed upon *knowledge*. But if that desire can be satisfied only by so radically altering the meaning of 'cognitive' that in its new use the term has no recognizable continuity with its normal employment, has not the ideal of clarity been sacrificed, and has not a serious disservice been thereby rendered to that which is prized so highly.[4]

Nagel's criticisms of Langer imply that any account of the complexity of structural features in works of art would be irrelevant to the question of whether structure in art has a cognitive function unless one can show that

---

[3] Nagel, p. 328.

[4] *Ibid*., p. 329.

XUM

the internal structural relationships were somehow relevant to the ability of the structure to have a symbolic reference. And he seems to suggest that in the case of language, when one is considering syntax alone one is not dealing with language as symbolism, and, hence, one is not dealing with the cognitive core of language. But must one accept Nagel's suggestions here, and must one accept the conclusion that one cannot establish that structure in art has a cognitive function without stretching our understanding of the term "cognitive" beyond any "recognizable continuity with its normal employment"?

Further Approaches to the Cognitive Significance of Structure

In the preceding chapters I have offered suggestions for an alternative position. The purpose of those chapters was not to develop that position since my primary concern was to show the inadequacies of various kinds of theories for dealing with the question of the cognitive significance of structure through an account of structure as symbolism. However, the point of criticism is hopefully to clear the path for more positive approaches to a problem. And I think that my criticisms of Langer's, Goodman's, and Meyer's theories do, at times, indicate the lines along which such an approach can be developed.

Before sketching out some of the considerations for an account of structure as cognitive, we should raise some questions about Nagel's criticisms of Langer which were cited above. First of all, it should be noted that an analysis of the syntactical properties of language can take a number of different forms. In Chapter III, I made a distinction between an analysis of language to determine the "grammar" of the language and an analysis in terms of information theory. And I suggested that in the former case the properties revealed may be very relevant to the question of how a sentence takes on meaning while in the second case the properties revealed may not be as relevant. Thus, it is not clear that a formal treatment of language is necessarily one that is divorced from the symbolic function of language. One may be oversimplifying the nature of language in conceiving of its symbolic, and hence cognitive, function as somehow totally dependent upon semantic properties, irrespective of syntactic properties. Secondly, the role of syntax in language may actually be very different from the role of corresponding structural properties in art. Only persons who are particularly interested in "grammar" in language give to linguistic syntax the kind of attention that is frequently given to structural properties in works of art. Consequently, one can still question whether a

XUM

formal treatment of structure in art is irrelevant to the structure's symbolic function even if one agrees that that is the case with language. Thirdly, the discussion of information theory has indicated that one may sensibly talk about various kinds of "information" which can be carried by symbol systems, some of this information taking a syntactic form and some taking a semantic form. If this is the case, then one can ask whether the use of the term "cognitive" to refer to the function of any system which can carry syntactic information in some form is really so far from the "normal employment" of the term.[5] In any case, we should realize that the normal employment of the term today is not necessarily that which Nagel thought it to be at the time when he was writing his criticism.

In sketching out my suggestions for further work on the question of the cognitive function of structure in the perceptual arts, I would like to deal first with the perception of structure as cognitive. Earlier in the chapter, I made a distinction between two senses in which perception in general may be said to be cognitive. In considering the perception of structure in art, the second sense which I distinguished has some interesting ramifications. Recall that perception may be said to be cognitive in the sense that one employs one's previously acquired knowledge of the world in perceiving the world. If all perception is cognitive in this sense then one might wonder what is different about the perception of structure in art. However, an exploration of the similarities and differences between our ordinary perception of objects and the perception of structure in the perceptual arts may reveal part of the significance of structure for a perceiver.

---

[5] James Gibson has developed a theory of perception in which he uses the term "information" to refer to the relational or "structural" properties of the world which can be picked up by our "perceptual systems." The "information" perceived in this sense is considered to be a form of direct knowledge of the world. Gibson's theory of perceptual information may prove useful for understanding the information in structure in art. See James J. Gibson, The Senses Considered as Perceptual Systems (Boston: Houghton Mifflin Company, 1966).

One of the most important differences between ordinary perception and the perception of structure in art is the apparent extent to which the mind of the perceiver must fill in or complete the information which he is given. Thus, in Chapter III, we discussed the fact that hearing a group of tones as forming a pattern involves something more than simply hearing each of the tones comprising the pattern. (And recall that Langer referred to the created space of a work as arising out of the colors and lines placed on the canvas.) In the former case, that of hearing the tones as forming a pattern, the tones are heard as related to one-another or as organized in a certain way whereas the organization is lacking in the latter. Even if one can also claim that ordinary perception involves "filling in" or "completion," the kind or complexity of the "completion" required in the perceptual arts is apparently different from that in ordinary perception since our abilities to perceive the structures of the world are apparently not easily transferable to the structures in art except, perhaps, in the case of visual representation.

One should note that when we say that the mind of the viewer or listener supplies the structure, we should not therefore conclude that the structure is arbitrary in the sense that the perceiver can bring to the colors or tones any organization he chooses. If structural properties were arbitrary they would not be considered a significant aspect of works of art. If one can learn to see a painting or hear a musical work in terms of structural properties which one previously did not see or hear, and if these properties, which arise out of seeing or hearing elements in their relationships to one-another, are aesthetically significant properties of the work, then the organization which gives rise to the properties must be specific to the particular configuration of lines and colors, or the particular configuration of tones, in the work. In stressing the non-arbitrary nature of structural properties, I am not claiming that there is only one way in which works may be heard. However, I am suggesting that there are ways in which works may not be heard in the sense that one would be incorrect to attribute to certain groups of tones or configurations of colors and lines certain structural properties because those particular tones or colors could not take on an organization in which they could be heard or seen as having the properties in question.

The above brief discussion indicates, I think, that there may be at least one respect in which the perception of structure in art is significantly different from ordinary perception. Whether this is a difference in the kind of cognition involved is a question which will probably have to wait to be answered until we know more about perception in general. However, I want to suggest that a more developed study of this aspect of the perception of structure may reveal grounds for revising the claim I made earlier: that when one says that art is cognitive one is not referring to the fact that the ability to perceive relevant features in works of art is dependent upon or involves one's knowledge. Part of the significance of structure in art may be related to the fact that the perception of structure involves and develops intellectual processes which are in some sense different from those ordinarily involved in and developed through our ordinary perception of the world.

The second respect in which we may want to say that structure is cognitive comes closer to the sense in which language is said to be cognitive as symbolism than to either of the two senses distinguished above in which perception may be said to be cognitive. The cognitive function of language has often been tied to the use of language to record and communicate knowledge or information. The suggestion which I think needs to be explored is whether works of art can be said to record and communicate information of a syntactic sort through their structural properties. If structure can be said to be cognitive in this sense, then some of the problems of a symbolic account of structure can be avoided.

Recall that we wanted to explain the fact that works in the perceptual arts are found to be perceptually interesting in themselves. But if we should regard elements in works solely as symbols, then it is difficult to explain the perceptual interest afforded us by the works since symbols tend to function primarily as vehicles which direct our attention to their import. However, in the case of the "information" carried by structure, a similar

XUM

difficulty would not arise precisely because of the fact that the structure in works, as we have already seen, cannot be extracted from the elements that are related to one-another. One has to be seeing the colors arranged on the canvas in order to see the organization that arises through that arrangement. Furthermore, seeing and hearing structure would require the active participation of the perceiver since structures are not given in the way that colors and tones are given.

Thus, the notion that structure can carry syntactic information may help us explain why structure is often held to be significant in works of art while doing justice to the fact that one cannot talk about structure in works apart from the perceptual elements that comprise the significant relationships in the works. Also, the notion that structure carries syntactic information does not preclude the fact that structural elements may also function symbolically; and, consequently, it could avoid some of the difficulties facing theories such as Langer's which claim that there is only one way in which works of art can be significant. At the same time, such a notion could, I think, provide us with an additional sense in which we may be said to read a painting as well as a peom by explaining the significance of our efforts at discerning the subtle relationships between perceptual elements that enable those elements to comprise patterns and our efforts at discerning the relationships between those patterns. Finally, were such an account successful, it could, I think, explain the significance of art as being cognitive through and through without abusing the term "cognitive."

SELECTED BIBLIOGRAPHY

Aldrich, Virgil C. "Form in the Visual Arts." *British Journal of Aesthetics*, XI (Summer, 1971), 215-26.

Aldrich, Virgil C. "Pictorial Meaning, Picture Thinking, and Wittgenstein's Theory of Aspects." *Mind*, LXVII (January, 1958), 70-79.

Attneave, Fred. *Applications of Information Theory to Psychology: A Summary of Basic Concepts, Methods, and Results*. New York: Holt, Rinehart and Winston, 1959.

Attneave, Fred. "Some Informational Aspects of Visual Perception." *Psychological Review*, LXI (May, 1954), 183-93.

Beardsley, Monroe C. *Aesthetics: Problems in the Philosophy of Criticism*. New York: Harcourt, Brace and Company, 1958.

Boretz, Benjamin. "Nelson Goodman's *Languages of Art*; From a Musical Point of View." *Journal of Philosophy*, LXVII (August, 1970), 540-52.

Chomsky, Noam. *Aspects of a Theory of Syntax*. Cambridge, Mass.: M.I.T. Press, 1965.

Chomsky, Noam. *Syntactic Structures*. The Hague: Mouton & Co., 1965.

Cohen, Joel E. "Information Theory and Music." *Behavorial Science*, VII (April, 1962), 137-63.

Coons, Edgar, and Kraehenbuehl, David. "Information as Measure of Structure in Music." *Journal of Music Theory*, II (November, 1958), 127-61.

Garner, Wendell R. "Good Patterns Have Few Alternatives." *American Scientist*, LVIII (January-February, 1970), 34-42.

XUM

Gibson, Eleanor J. Principles of Perceptual Learning and Development. New York: Appleton-Century-Crofts, educational division of Meredith Corporation, 1969.

Gibson, James J. "The Information Available in Pictures." Leonardo, IV (Winter, 1971), 27-35.

Gibson, James J. The Senses Considered as Perceptual Systems. Boston: Houghton Mifflin Company, 1966.

Goodman, Nelson. Languages of Art: An Approach to a Theory of Symbols. Indianapolis: Bobbs-Merrill Company, Inc., 1968.

Goodman, Nelson. "Some Notes on Languages of Art." Journal of Philosophy, LXVII (August, 1970), 563-73.

Gregory, R. L. Eye and Brain: The Psychology of Seeing. World University Library. New York: McGraw-Hill Book Company, 1966.

Haber, Ralph, ed. Contemporary Theory and Research in Visual Perception. New York: Holt, Rinehart and Winston, Inc., 1968.

Hochberg, Julian. "The Representation of Things and People." Art, Perception, and Reality, by E. H. Gombrich, Julian Hochberg, and Max Black. Baltimore: John Hopkins University Press, 1972.

Kraehenbuehl, David, and Coons, Edgar. "Information as a Measure of the Experience of Music." Journal of Aesthetics and Art Criticism, XVII (June, 1959), 510-22.

Langer, Susanne K. Feeling and Form. New York: Charles Scribner's Sons, 1953.

Langer, Susanne K. Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art. A Mentor Book. New York: New American Library, 1951.

Mackay, D. M. "The Place of 'Meaning' in the Theory of Information." Information Theory: Third London Symposium. Edited by E. C. Cherry. New York: Academic Press, 1955.

Meyer, Leonard B. Emotion and Meaning in Music. Chicago: University of Chicago Press, 1956.

Meyer, Leonard B. Music, the Arts, and Ideas. Chicago: University of Chicago Press, 1967.

Mitchells, K. Review of The Musical Symbol: A Study of the Philosophic Theory of Music, by George Epperson. British Journal of Aesthetics, X (January, 1970), 87-89.

Nagel, Ernest. Review of Philosophy in a New Key, by Susanne K. Langer. Journal of Philosophy, XL (May, 1943), 323-29.

Rudner, Richard. "On Semiotic Aesthetics." Journal of Aesthetics and Art Criticism, X (September, 1951), 66-77.

Sharpe, R. A. "Music: The Information-Theoretic Approach." British Journal of Aesthetics, XI (Autumn, 1971), 385-401.

Singh, Jagjit. Great Ideas in Information Theory, Language and Cybernetics. New York: Dover Publications, Inc., 1966.

Springer, George P. "Language and Music: Parallels and Divergencies." For Roman Jakobson. Compiled by Morris Halle and others. The Hague: Mouton & Co., 1956.

Taylor, Basil. Cézanne. London: Spring Books, 1961.

Weitz, Morris. Philosophy of the Arts. New York: Russell & Russell, 1964.

Youngblood, Joseph E. "Style as Information." Journal of Music Theory, II (April, 1958), 24-35.